

Saugus Iron Works National Historic Site Fire Management Plan

Prepared by

Saugus Iron Works National Historic Site
Northeast Region
National Park Service
Department of the Interior

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I. INTRODUCTION

A. Purpose of the Fire Management Plan

Fires and fire management activities have risks and require appropriate planning and preparation. According to National Park Service (NPS) Director's Order #18: Wildland Fire Management (DO-18) [NPS 2003], all areas with vegetation capable of sustaining fire will develop a Fire Management Plan. Saugus Iron Works National Historic Site contains areas with vegetation capable of sustaining fire and therefore has developed this Fire Management Plan to protect park visitors and employees, historic structures, and adjacent public and private property from wildland fires while accomplishing park management policies and objectives.

B. Fire Management Plan Collaboration

The Fire Management Plan was developed by National Park Service (NPS) staff from Saugus Iron Works National Historic Site, Cape Cod National Seashore, and the Northeast Region Boston Support Office. The Fire Management Plan is guided by management policies and objectives within the historic site's General Management Plan (GMP) [NPS 2002b] and Resource Management Plan (RMP) [NPS 2002c]. As the Fire Management Plan is implemented, additional collaborative opportunities with other Federal agencies, the Commonwealth of Massachusetts, and the Town of Saugus will be available.

C. Fire Management Policies and Goals

The Fire Management Plan will implement fire management policies and help achieve resource management and fire management goals as defined in:

- 1) Federal Wildland Fire Management Policy and Program Review [NIFC 2001],
- 2) Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Study [USDA and USDOJ 2001]; and
- 3) A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan [USDA and USDOJ 2002a].

D. Compliance

The Fire Management Plan meets National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) requirements.

Hazardous fuel (consisting mainly of non-native invasive vegetation) within the historic site will be managed using various techniques. Examples include using Integrated Pest Management (IPM) and mechanical removal methods. All

methods to manage hazardous fuels will comply with NEPA and NHPA guidelines.

E. Authorities

Authority for fire management is found in 16 United States Code (USC) Section 1 (August 25, 1916), which states that the agency's purpose:

"...is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

This authority was clarified in the General Authorities Act of 1970 and the Redwood Act amendment of 1978:

"Congress declares that...these areas, though distinct in character, are united...into one national park system....The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

The authority for Firepro funding (normal fire year programming) and all emergency fire accounts are found in the following authorities:

Section 102 of the General Provisions of the Department of Interior's annual Appropriations Bill provides the authority under which appropriated monies can be expended or transferred to fund expenditures arising from the emergency prevention and suppression of wildland fire.

Public Law 101-121, Department of the Interior and Related Agencies Appropriation Act of 1990, established the funding mechanism for normal year expenditures of funds for fire management purposes.

31 USC 1515(a)(1)(B) provides the authority to exceed appropriations due to wildland fire management activities involving the safety of human life and protection of property.

Authorities for procurement and administrative activities necessary to support wildland fire suppression missions are contained in the Interagency Fire Business Management Handbook. Authorities to enter into agreements with other Federal bureaus and agencies; with state, county, and municipal governments; and with private companies, groups, corporations, and individuals are cited in Director's Order #20 (DO-20) [NPS 1999] and the National Park

Service Agreements Handbook [NPS 2002a]. These include the Reciprocal Fire Protection Act of May 27, 1955 (42 USC 1856a, 69 Stat. 66).

Authority for interagency agreements is found in "Interagency Agreement between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture." Authority for rendering emergency fire or rescue assistance outside the National Park System is the Act of August 8, 1953 (16 USC 1b(1)) and the United States Department of the Interior (USDOI) Manual 910 (DM 910) [USDOI 1997].

II. NATIONAL PARK SERVICE POLICY AND RELATION TO OTHER PLANS

A. National Park Service Management Policies

National Park Service fire management policy is expressed in Section 4.5 of *National Park Service Management Policies, 2001* [NPS 2001b]:

“Wildland fire may contribute to or hinder the achievement of park management objectives. Therefore, park fire management programs will be designed to meet park resource management objectives while ensuring that firefighter and public safety are not compromised.”

“Each park with vegetation capable of burning will prepare a fire management plan and will address the need for adequate funding and staffing to support its fire management program. The plan will be designed to guide a program that responds to the park’s natural and cultural resource objectives; provides for safety considerations for park visitors, employees, neighbors, and developed facilities; and addresses potential impacts to public and private property adjacent to the park. An environmental assessment developed in support of the plan will consider the effects on air quality, water quality, health and safety, and natural and cultural resource management objectives. Preparation of the plan and environmental assessment will include collaboration with adjacent communities, interest groups, state and federal agencies, and tribal governments.”

B. Saugus Iron Works National Historic Site

1. Enabling Legislation and Purpose

Congress established Saugus Iron Works National Historic Site as a unit of the National Park System under Public Law 90-282 on April 5, 1968 [United States Congress 1968]. The Park's legislated mission is "to preserve in public ownership the first sustained integrated ironworks in the Thirteen Colonies."

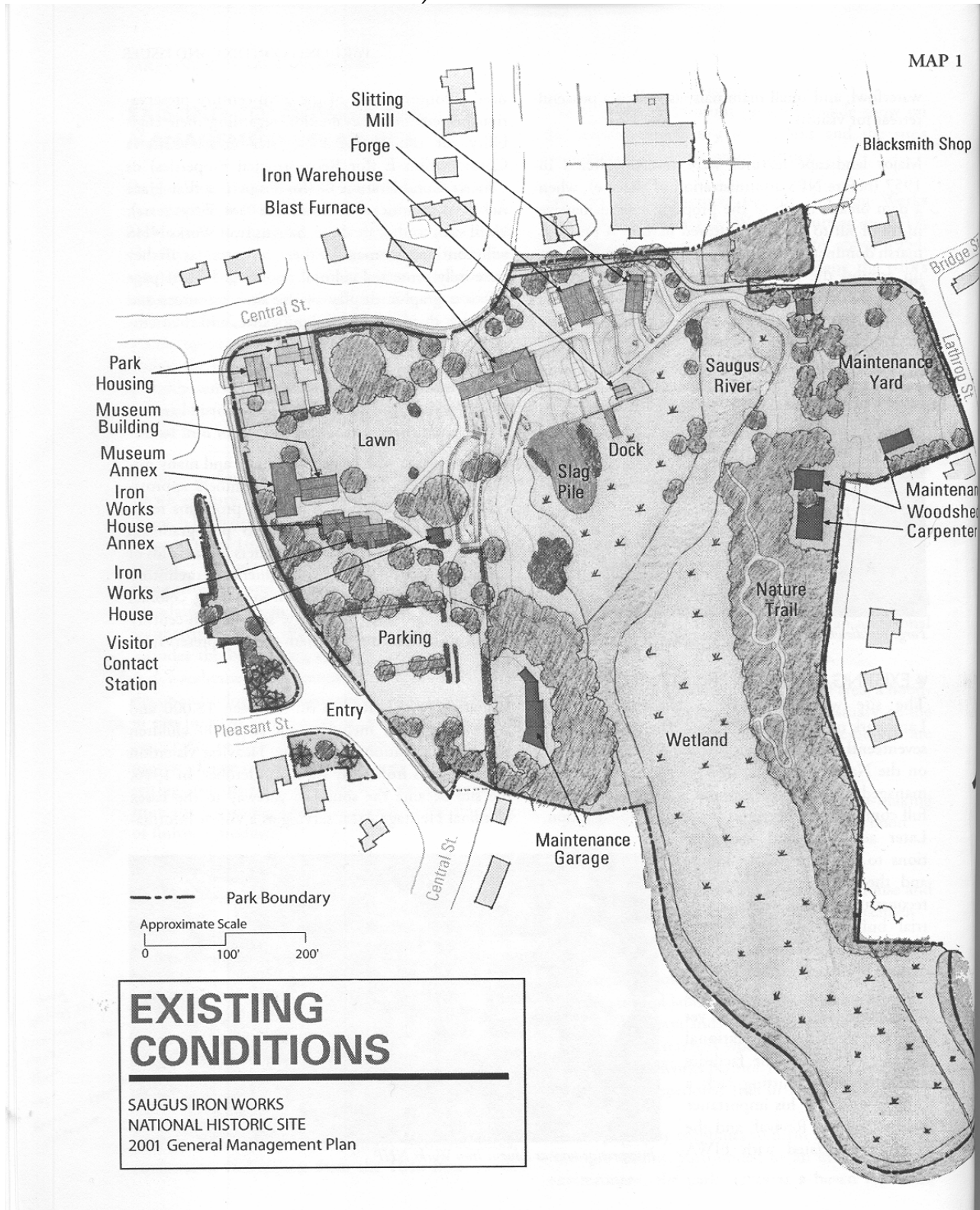
Saugus Iron Works National Historic Site is an 8.51-acre park (acreage does not include Saugus River and adjacent wetland) located approximately ten miles north of Boston, in Essex County, Massachusetts. The park preserves and interprets the archeological and historic sites, structures, objects, and the reconstructed historic scene associated with the first successful iron works in America, which operated in the area from 1646 to approximately 1670 [NPS 2002b].

2. Significant Resources and Values

Significant natural, cultural, and historic resources and values in the Park (Figure 1) include the:

- Museum building (1917) and annex (1954) containing collections of English settlement and Native American objects.
- Iron Works House (circa. 1682, restored 1915-1917) and annex (1917).
- Blast furnace (reconstructed in 1952).
- Forge and industrial site landscape (reconstructed in 1953).
- Rolling and slitting mill, iron warehouse, and pier (reconstructed in 1954).
- Slag pile (1646-circa. 1670).
- English settlement and Native American archeological sites.
- Blacksmith shop (1975).
- Cargo boat, *Alewife* (2002).
- Landscaped areas, walls, and fences within and throughout the historic site.
- Saugus River.
- Wetland marsh and riparian woodlands.

Figure 1. Map of Significant Natural, Cultural, and Historical Resources of Saugus Iron Works National Historic Site (2002 General Management Plan and Environmental Assessment)



C. Objectives of General Management Plan and Resource Management Plan in Relation to Fire Management

The desired conditions of Saugus Iron Works National Historic Site are to preserve, protect, manage, and interpret the historical and cultural resources related to the earliest development of iron manufacturing in colonial America. In addition, the historic site's natural resources will be preserved, protected, managed, and interpreted as part of the cultural landscape and will complement the historical significance of the site.

The Saugus Iron Works National Historic Site General Management Plan (GMP) [NPS 2002b] has three objectives: preserve park resources, provide for the public enjoyment and visitor experience of parks, and ensure organizational effectiveness. In relation to fire management and park resource preservation, the GMP states:

“Natural and cultural resources and associated values are protected, restored and maintained in good condition and managed within their broader ecosystem and cultural context.”

The objectives of the Saugus Iron Works National Historic Site Resource Management Plan (RMP) [NPS 2002c] are to “preserve and interpret the cultural and natural resources” identified in the historic site's GMP.

The Fire Management Plan is a detailed program of action to implement fire management policies and objectives. The objective of the Fire Management Plan in relation to the GMP and RMP is to protect the cultural and natural landscapes and historic structures within the historic site from wildland fire. The objective of the Fire Management Plan concurs with the objectives of the historic site's GMP and RMP.

III. FIRE MANAGEMENT STRATEGIES

A. General Management Considerations

Wildland fire within Saugus Iron Works National Historic Site will be managed to ensure the safety of firefighters, park personnel, and the public, and to protect the historic and cultural resources within the historic site as well as private property and homes adjacent to the historic site. Park staff will collaborate with Fire Management Officers (FMOs) throughout the Northeast Region of the NPS as well as with the Saugus Fire Department to manage wildland fire within the historic site.

In addition, park staff will use the principles in the 10-Year Comprehensive Strategy to aid in wildland fire management within the historic site. The comprehensive strategy outlines how the nation, cooperatively and collaboratively, will restore and maintain health in fire-adapted ecosystems across the country. The principles in the 10-Year Comprehensive Strategy [USDA and USDOl 2002a] include collaboration, priority setting, and accountability.

B. Wildland Fire Management Goals

The following wildland fire management goals provide the programmatic direction for the Saugus Iron Works National Historic Site wildland fire program. These goals describe how the Fire Management Plan will safely and effectively contribute to achieving the goals in the historic site's GMP [2002b] and RMP [2002c].

- Ensure that firefighter and public safety are the highest priority of every fire management activity.
- Suppress all wildland fires regardless of ignition source to protect public and park personnel, private property, and the natural and cultural resources of Saugus Iron Works.
- Inform the public of fire danger potential.
- Minimize impacts to resources within and adjacent to Saugus Iron Works during all fire management activities.
- Reduce wildland fire hazards near developed areas and adjacent to the park's cultural and historical sites.
- Develop working relationships with pertinent fire management agencies.

In addition, the goals described above will contribute to accomplishing wildland fire management goals described in the 10-Year Comprehensive Strategy [USDA and USDOl 2001], and the National Park Service policy on wildland fire management (DO-18) [NPS 1998b].

C. Fire Management Options

1. Wildland Fire Suppression

All wildland fires, regardless of the ignition source, will be suppressed in a prompt, safe, and cost-effective manner to produce fast, efficient action with minimum damage to natural and cultural resources.

Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, resource benefits from wildland fire will not be the primary consideration at Saugus Iron Works National Historic Site. Appropriate suppression action will be taken to ensure firefighter safety, public safety, and protection of resources within the park.

Critical protection areas, such as historic structures, park facilities, and private residences near boundaries will receive priority consideration in fire control planning efforts. If necessary, all individuals not involved in the suppression effort may be evacuated from the area. Primary wildland fire suppression activities will be conducted by Saugus Fire Department.

2. Prescribed Fire

Prescribed fire is a fuel management technique that uses fire under specific conditions where the area to be burned is predetermined and the intensity of the fire is controlled. Due to the location of Saugus Iron Works National Historic Site within an urban area, prescribed fire will not be used.

3. Wildland Fire Use

Although wildland fire may have been an important component of the ecosystem at Saugus Iron Works National Historic Site in the past, all wildland fires will be immediately suppressed due to the:

- Health and safety concerns of park personnel and visitors and adjacent residents and property owners.
- Unforeseen occurrence of wildfires.
- Number of personnel immediately available to properly manage the wildfire for resource benefits.
- Location and proximity of NPS historic and non-historic structures and adjacent properties and residences to the wildfire.

4. Non-Fire Applications

Park staff will primarily use non-fire applications to reduce the level of hazardous fuels within Saugus Iron Works National Historic Site. Hazardous fuels will be reduced using mechanical, chemical, biological, or manual methods or a combination of these methods.

D. Fire Management Units

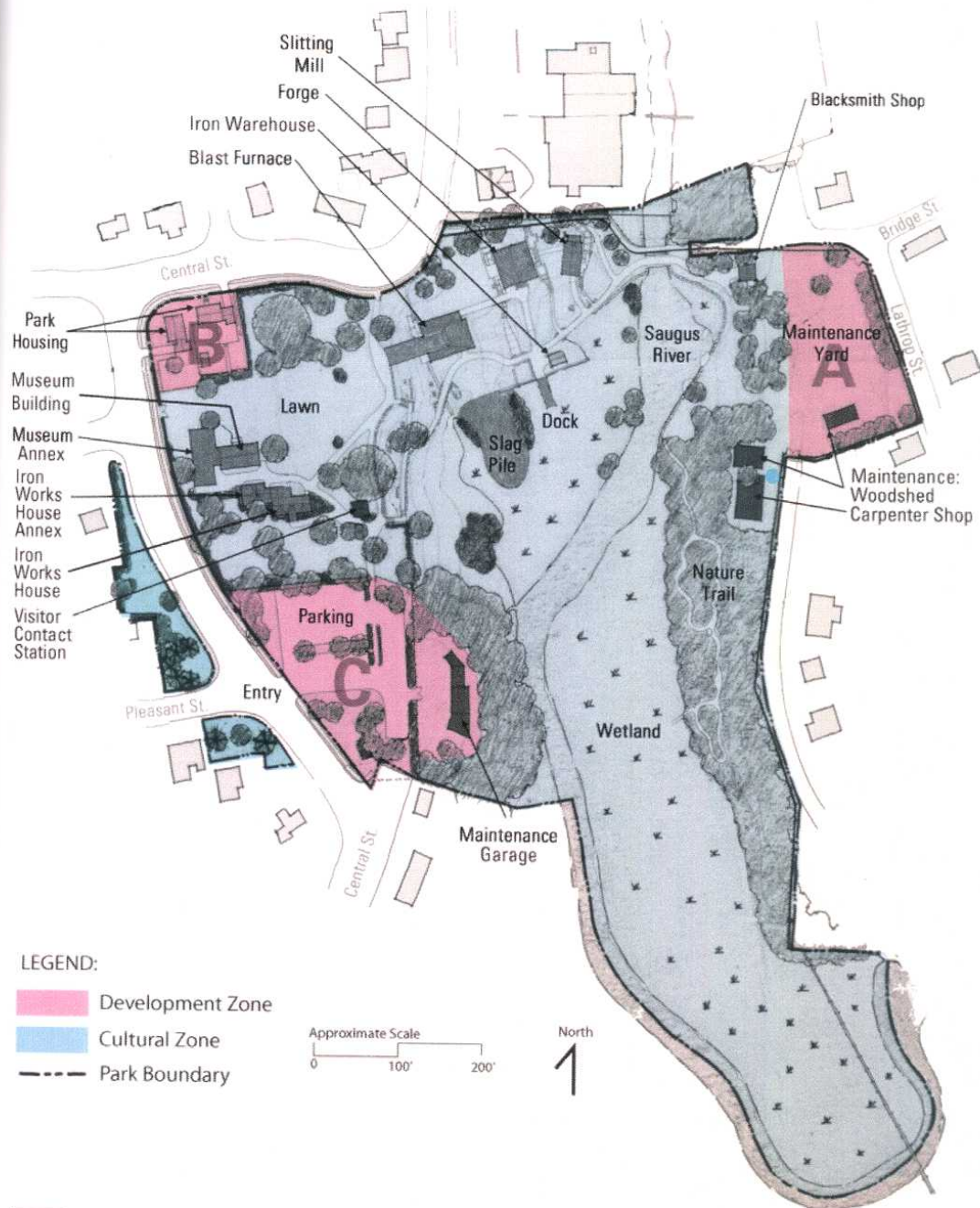
A Fire Management Unit (FMU) is a functional area defined by specific fire management objectives. Saugus Iron Works National Historic Site will be managed as a single FMU (Figure 1).

1. Physical and Biotic Characteristics

a. Cultural and Historical Resources

The GMP [NPS 2002b] divides the historic site (FMU) into two management zones: cultural and development (Figure 2). The cultural zone is managed to preserve, protect, and interpret the site's cultural and historical resources and their settings. The three development zones within the FMU will be managed for existing and future infrastructure development.

Figure 2. Map of Saugus Iron Works National Historic Site Management Zones (2002 General Management Plan)



MANAGEMENT ZONING

SAUGUS IRON WORKS
NATIONAL HISTORIC SITE
2002 General Management Plan

The cultural and historical resources within the Saugus Iron Works National Historic Site FMU are divided into four major time periods: prehistoric (c. 10,000 B.P.), Iron Works (1646 to circa. 1670), Iron Works Farm (1670-1911), and the 20th century preservation movement (1911 to 1968). The FMU currently contains various archeological sites and eight historical structures related to these four time periods [NPS 2002b].

Other property within the FMU consists of two residential homes and adjacent storage buildings, interpretive displays and signs, maintenance facilities and equipment, electronic equipment, vehicles, construction materials, and supplies used to maintain daily operations of the historic site.

b. Air Quality

The FMU is located in a Class II air quality area. Air quality within the FMU is affected by power stations in Salem and Charlestown and by remote sources of air pollution that are transported into the region by prevailing winds. Massachusetts Department of Environmental Protection annual reports indicate that the number and severity of the 1-hour ozone exceedances has declined significantly in recent years. As of 2002, Massachusetts was in violation of the 1-hour and 8-hour standards based on ozone readings for the 1999-2002 period. [Commonwealth of Massachusetts, 2002]. The air quality monitoring site closest to the FMU is located at the Lynn Water Treatment Plant. This site monitors ozone, nitrogen oxides, and particulate matter. Pollutants originating from the FMU are from the emissions of vehicles used by visitors to reach the park, routine maintenance activities, and burning of charcoal for interpretive purposes [NPS 2002b].

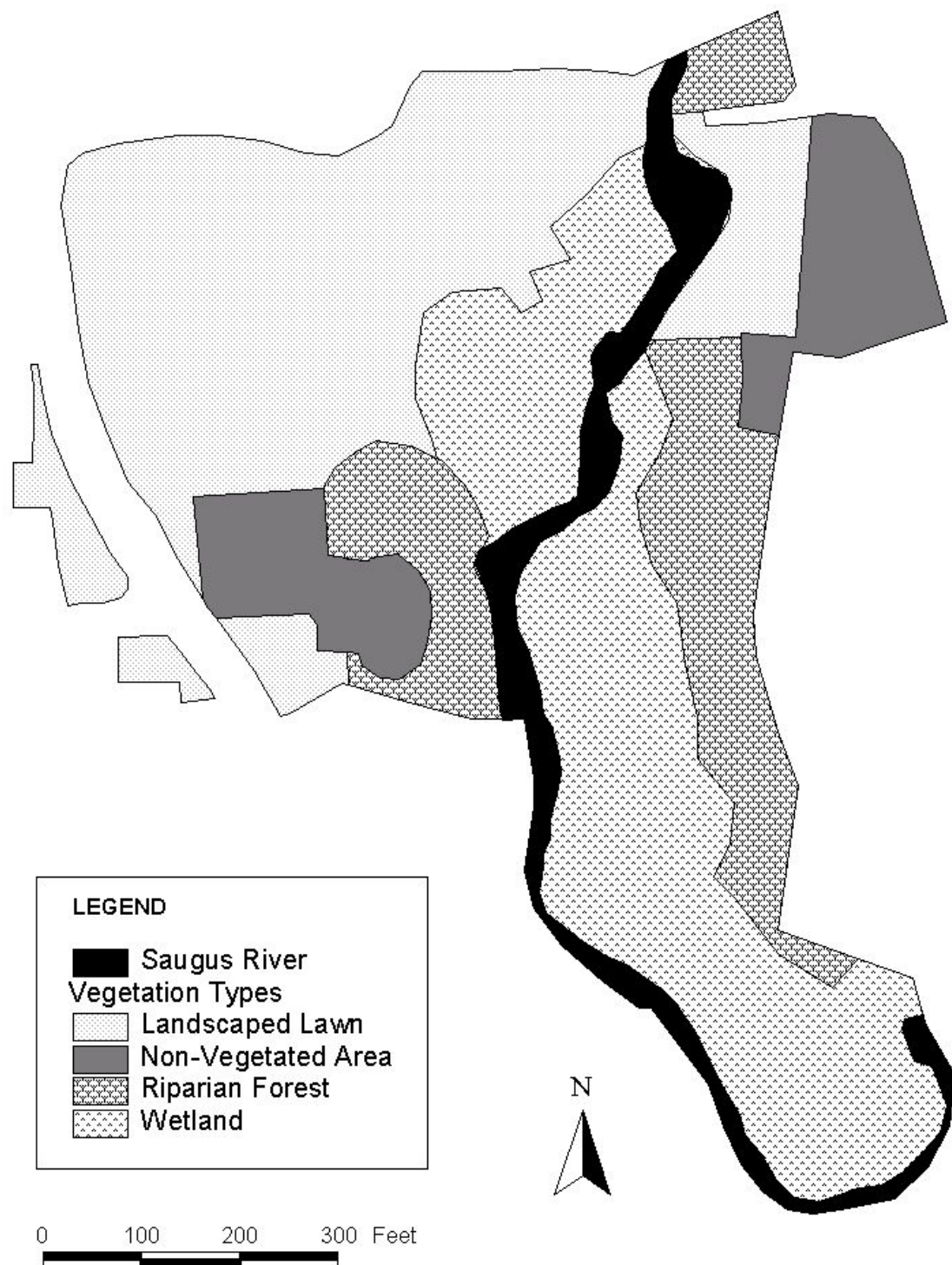
c. Soils

The soils of the FMU were identified in *Baseline Assessment of the Saugus River System* [Tashiro 1991]. The banks along the Saugus River of the FMU are composed of Hollis-Urban land-rock outcrop complex, Merrimac-Urban land complex, and some Ipswich and Westbrook muck peats. In the freshwater tidal marsh, decomposed sapric histosol organic soils or organic rich mineral soils usually dominate the sediments.

d. Fuel Types and Vegetation

The FMU consists of three different vegetative areas that are bisected by the Saugus River: landscaped lawn, wetland, and riparian woodland (Figure 3). These vegetative areas contain at least 160 species of vascular plants [Clemants 1997]. Approximately five acres of the FMU consist of historical and non-historical structures surrounded by landscaped lawns with native and non-native ornamental shrubs, trees, and herbaceous plants. This landscaped area is routinely maintained by park personnel and therefore does not have a fuel type.

Figure 3. Vegetation Types within Saugus Iron Works National Historic Site.



Approximately four acres of the FMU consist of the Saugus River wetland. This wetland is classified as Fuel Type 3. The wetland is dominated by invasive species such as common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), and multiflora rose (*Rosa multiflora*). Native species of woody and herbaceous plants within the tidal marsh include narrow-leaved cattail (*Typha angustifolia*), staghorn sumac (*Rhus hirta*), and green ash (*Fraxinus pennsylvanica*).

The remaining vegetative area of the FMU is classified as Fuel Type 10 and consists of approximately two acres of riparian woodlands on each side of the Saugus River. The dominant overstory tree species within the woodlands is Norway maple (*Acer platanoides*), an invasive non-native tree. Native overstory trees within the riparian woodlands are shagbark hickory (*Carya ovata*), American beech (*Fagus grandifolia*), and black walnut (*Juglans nigra*). Skunk cabbage (*Symplocarpus foetidus*), poison ivy (*Toxicodendron radicans*), and multiflora rose are the dominant ground species within the riparian woodlands. The riparian woodlands on the east bank of the Saugus River are located on mostly level ground with areas containing slopes of less than five- percent gradient. Most of the riparian woodland on the west bank of the Saugus River is located on a slope with a gradient exceeding thirty percent.

e. Wildlife

The FMU contains a wide variety of wildlife. Mammals within the FMU include the raccoon (*Pryocyon lotor*), woodchuck (*Marmota monax*), Eastern chipmunk (*Tamias striatus*), Eastern gray squirrel (*Sciurus carolinensis*), and common muskrat (*Ondatra zibethicus*). The FMU also contains several species of perching birds, waterfowl, and herons. Reptiles and amphibians within the FMU include the snapping turtle (*Chelydra serpentina*), common garter snake (*Thamnophis sirtalis*), and green frog (*Rana clamitans*).

f. Aquatic Resources

The aquatic resources of the FMU consist primarily of the Saugus River and surrounding wetlands. The flow of the Saugus River within the FMU is influenced by the tide of the Atlantic Ocean. The FMU was surveyed in 1989 for fish, aquatic macroinvertebrates, and diatoms as part of a baseline assessment of the Saugus River watershed [Tashiro 1991]. Based on this assessment, the FMU contains at least four species of fish: American eel (*Anguilla rostrata*), fourspine stickleback (*Apeltes quadracus*), white sucker (*Catostomus commersoni*), and mummichog (*Fundulus heteroclitus*). The FMU also contains four species of segmented worms (Annelida), the amphipod *Gammarus fasciatus*, three species of aquatic insects, and seven species of diatoms.

g. Threatened and Endangered Species

No federally threatened or endangered species are known to occur within the FMU. Based on observations by Sandy Wignot in 1988, one species of the state (Massachusetts) endangered plant, the American waterwort (*Elatine americana*), was recorded within the FMU; however, further attempts to locate this plant within the FMU were unsuccessful [Clemants 1997].

2. Strategic and Measurable Fire Management Objectives

The FMU will be managed to meet the following objectives:

- Firefighter and public safety will have the highest priority in all fire management activities.
- All wildland fires within the FMU will be suppressed to minimize fire presence, prevent the spread of fire onto private property, and protect the public and the natural, cultural and historic resources of Saugus Iron Works National Historic Site.
- Park personnel will work closely with Saugus Fire Department with wildland fire suppression activities within the FMU.
- Hazard fuel reduction will be given important consideration, because of the cultural and historic values within the FMU. Hazard fuel reduction will be applied around vulnerable natural and cultural resources for protection from fire damage. Invasive vegetation that is considered a hazardous fuel will be managed using Integrated Pest Management (IPM) techniques.
- The natural resources within the FMU will be monitored for ecological changes due to wildland fire.

3. Management Considerations and Criteria

Park personnel will ensure the management considerations and criteria listed below are followed while meeting the FMU's objectives:

- All fire management activities will consider safety of personnel and the public as the highest priority.
- All fire management activities will have no unacceptable negative impact on the historic site's cultural and natural resources.
- Qualified individuals will carry out fire management operations that promote the safe and skillful application of fire management strategies and techniques.
- Primary fire suppression responders (Saugus Fire Department and park personnel) will employ minimum impact tactics in wildland fire suppression operations.
- Social and political impacts, including Wildland Urban Interface (WUI) will be considered in implementing the Wildland Fire Implementation Plan (WFIP).
- Park visitors and local residents (WUI) will be notified of all planned and unplanned fire management activities that have the potential to impact them.

4. Historic Role of Fire

Historically, fire most likely played a significant role in the forest community and adjacent wetlands surrounding the Saugus River before the settlement of Europeans during the early 17th century. In New England, the Early Archaic Indians (5000 B.C. to 3000 B.C.), Late Archaic Indians (3000 B.C. to 300 A.D.) and Ceramic-Woodland Indians (300 A.D. to 1676 A.D.) of the area used fire to fell large trees for the construction of dugout canoes [Wilbur, 1978]. New England Native Americans also used wildland fire to clear small areas of forests and fields for agriculture and hunting on a routine basis. [Russell, 1980].

During European settlement, wildland fires were suppressed because the forests were used as a source of wood to fuel the Saugus Iron Works, other industries, and small communities along the Saugus River. On occasion, wildland fires were unintentionally started by European settlers during the charcoal-making process to fuel the iron works industry along the Saugus River.

In the 20th century, employees of the First Iron Works Association and National Park Service routinely burned the wetland within the FMU in order to control the accumulation of common reed and other wetland plants. The last recorded prescribed fire within the FMU was in 1976.

5. Wildland Fire Management Situation

a. Historical Weather Analysis

Based on National Oceanic and Atmospheric Administration (NOAA) and National Weather Service (NWS) data, the average monthly precipitation of coastal Northeast Massachusetts is 3.6 inches (Table 1). The month of July has the lowest average monthly precipitation of 2.9 inches. The month of November has the highest average monthly precipitation of 4.2 inches. Overall, coastal Northeast Massachusetts does not have a dry or rainy season. Monthly precipitation amounts in the region do not vary more than 1.3 inches (50-year average).

The average annual temperature of coastal Northeast Massachusetts is 51.4 degrees Fahrenheit (°F) (Table 1). The warmest month of the year in the region is July with an average monthly temperature of 73.6 °F. The coldest month of the year is January with an average monthly temperature of 29.3 °F.

Table 1. Fifty-Year Temperature and Precipitation Averages for Coastal Northeast Massachusetts.

50-Year Average	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Temp. (°F)	29.3	31.1	38.2	48.3	58.4	68.0	73.6	72.0	64.6	54.5	44.9	34.2
Precip. (in)	3.8	3.5	4.1	3.7	3.3	3.2	2.9	3.5	3.4	3.6	4.2	4.1

NOTE: Data recorded from weather station located at Logan Airport, Massachusetts.

Winds at the FMU generally originate from two directions, depending on the time of day. Winds from the north and northeast generally occur during the night and through the morning hours with speeds less than one mile per hour. During the afternoon and early evening, wind direction shifts to the southeast with sustained wind speeds from three to ten miles per hour and gusts up to twenty miles per hour. The southeast winds originate from the Atlantic Ocean, located approximately three miles from the FMU.

b. Fire Season

Based on 50-year monthly precipitation levels in Table 1, a distinct wildland fire season does not occur in coastal Northeast Massachusetts. However, periods of drought spanning months or years do occur in the region.

c. Fuel Characteristics in Relation to Fire Behavior

The Saugus Iron Works FMU contains two primary fuel types or models. Fuel Model 3 consists of the herbaceous sedges and grasses within the Saugus River wetlands (Figure 3). This fuel model is comprised primarily of common reed (*Phragmites australis*), narrow-leaved cattail (*Typha angustifolia*), and purple loosestrife (*Lythrum salicaria*). During the growing season between May and October, these fuels are generally difficult to burn. As these fuels die and dry during the fall, they become more likely to burn. The dead stems tend to remain standing throughout the winter and into the next growing season, accumulating over several years and forming dense stands. As the accumulation continues, these fuels increase in flammability. These fuels also display high rates of spread under the influence of wind [Anderson 1982].

Fuel Model 8 consists of the trees and shrubs within the riparian woodlands along the banks and floodplain of the Saugus River (Figure 3). The primary vegetation species within these woodlands are Norway maple (*Acer platanoides*) and multiflora rose (*Rosa multiflora*). Only under severe weather conditions involving high temperatures, low humidity, and high winds do these fuels pose fire hazards [Anderson 1982].

d. Fire Regime Alteration

Historically, the frequency and intensity of wildland fires during pre-European settlement in the Saugus River area is not well known. From European settlement during the 17th century to the present day, wildland fires in the area have been regularly suppressed because of the rapid growth and development of communities within the area.

Based on national mapping projects conducted by the United States Forest Service [USFS 1999], the historical natural fire regime (pre-European settlement historical fire processes) for the broad area surrounding Saugus Iron Works is classified as a 0-35 year frequency with low severity (Fire Regime I).

The current fire regime of Saugus Iron Works and the surrounding area is classified as a Condition Class 2 [USFS 1999]. The attributes of this condition class are:

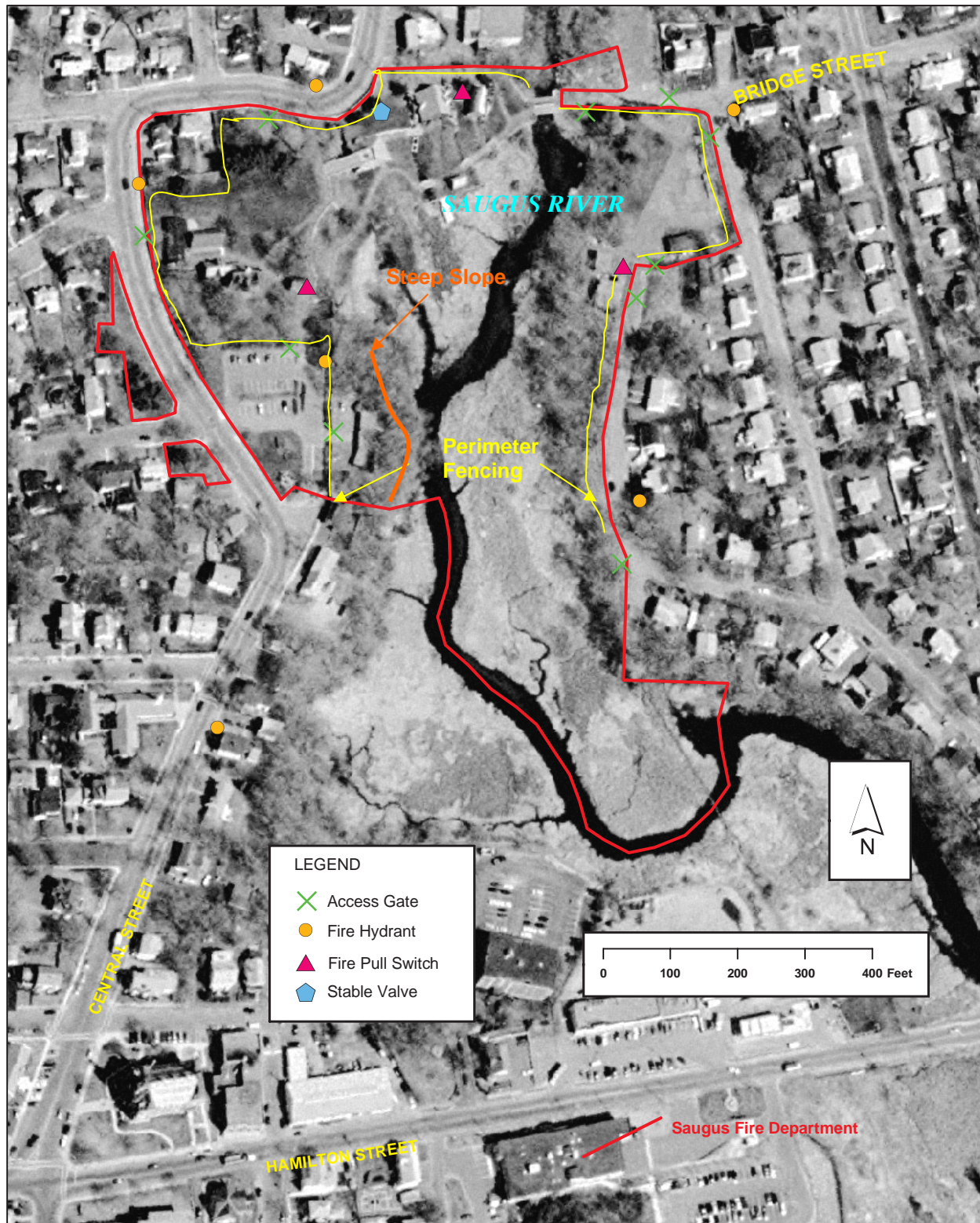
- Fire regimes have been moderately altered from their historical range.
- The risk of losing key ecosystem components has increased to moderate.
- Fire frequencies have departed from historical frequencies by more than one return interval. This results in moderate changes to one or more of the following – fire size, frequency, and intensity, severity, or landscape patterns.
- Vegetation attributes have been moderately altered from their historical range.

e. Control Problems

Several wildland fire control problems exist within the FMU (Figure 4).

- The FMU is bisected by the Saugus River, with no direct route from the east side of the river to the west side and vice versa. This requires additional access points to reach specific areas of the FMU.
- A fence eight feet in height borders the east side of the FMU along Riverbank Road. This fence has one locked access area.
- The riparian woodland on the east bank of the Saugus River contains thick stands of multiflora rose.
- The west bank of the Saugus River behind the maintenance facility contains a steep slope with loose soil and debris.
- Access gates to Central and Bridge Streets and the maintenance yard between Bridge Street and Riverbank Road are frequently locked for security.
- The warehouse and loading dock are within ten feet of the tall vegetation within the wetland.
- The warehouse contains large amounts of bagged charcoal. This charcoal is used to create fires in the various iron-making workstations within the industrial area for interpretive purposes.
- The carpenter shop near the east bank of the Saugus River and the maintenance facility near the parking area contain flammable materials. These materials are stored within Occupational Safety and Health Administration (OSHA) approved flammable cabinets.
- Warm, dry, and windy weather conditions can be expected to hinder wildland fire control efforts within the FMU.

Figure 4. Emergency Access Areas and Water Sources for Saugus Iron Works National Historic Site.



f. Values to be Protected

The following values within the FMU are to be protected from wildland fires:

- The health and safety of park personnel, the visiting public, and adjacent residents and property owners.
- Historic structures – Iron Works House and annex, museum building and annex, blast furnace, forge, slitting mill, iron warehouse, boat dock, and slag pile.
- Archeological features.
- Natural and cultural resource collections.
- Non-historic structures – visitor contact station, blacksmith shop, maintenance facilities, and residences at 230 and 232 Central Street.
- Personal property and structures outside and adjacent to the FMU.
- Natural resource values – a detailed description of natural resource values may be found in the GMP [NPS 2002b] and RMP [NPS 2002c].

IV. FIRE MANAGEMENT PROGRAM COMPONENTS

A. General Implementation Procedures

A Wildland Fire Implementation Plan (WFIP) (Appendix J) will be initiated for all wildland fires occurring within Saugus Iron Works National Historic Site (FMU). The WFIP is a standardized process for determining fire management responses and for documenting the resulting actions and outcomes. Stage I of the WFIP is an assessment of the initial fire situation within the FMU and includes a checklist of decision criteria (Appendix F). The WFIP is guided by management considerations and criteria listed in Section III-D-3 of this Fire Management Plan.

Stage I of the WFIP documents the current and predicted situation, documents all appropriate administrative information, and aids managers by providing them with decision criteria to make the initial decision whether to manage the fire for resource benefits or to take suppression action. The historic site's FMO or his or her designee is responsible for completing Stage 1 of the WFIP (Initial Fire Assessment).

Since suppression is the only appropriate response within the FMU, the requirement for a decision checklist as part of the Stage 1 analysis is met.

B. Wildland Fire Suppression

1. Range of Potential Fire Behavior

Fire behavior within the FMU can range from slow moving low surface fires burning detritus and low shrubs within Fuel Model 8 (riparian woodlands) to fast moving and intense fires in Fuel Model 3 (wetland sedges and grasses). While fire behavior should be consistent in Fuel Model 8, the speed and intensity of wildland fires in Fuel Model 3 will depend on air temperature, relative humidity, and wind speed and direction.

2. Preparedness Actions

a. Fire Prevention Activities

Fire prevention includes all activities designed to reduce the number of human-caused wildfires that occur within the historic site. The objective of the program will be to minimize preventable fires. Fire prevention will be discussed at selected staff safety meetings in late spring to make sure all personnel are aware of concerns and procedures regarding response to wildland fires.

The historic site will operate under two wildland fire condition levels: normal and extreme. Under normal wildland fire conditions, park personnel will continue to work safely with fire and ignition sources and routinely monitor the historic site for the presence of wildfires as well as the unsafe or illegal use of fire and ignition sources by other personnel and park visitors.

Other actions to prevent wildland fires within the historic site include:

- Maintaining firebreaks around structures by mowing and trimming vegetation.
- Removing dead and down woody material and leaves.
- Reducing or eliminating large stands of invasive plant species using IPM and non-fire fuel treatments.

Under extreme wildland fire conditions, all personnel will remain vigilant and continue to follow the fire prevention activities previously described. In addition, all personnel will follow a Step-Up Plan (described in Section e below).

b. Staff Training Activities

Staff training activities will consist of annual firefighter safety refresher training (for individuals currently certified as Type II wildland firefighters), first aid and CPR, and other safety training related to wildland fires for appropriate individuals. Basic wildland firefighter training (Type II wildland firefighter certification) will also be made available to interested employees with permission from the employee's supervisor. Basic safety, awareness, and prevention training will occur during employee staff meetings (this will especially apply to employees who routinely use fire as part of their duties).

c. Annual Preparedness Activities

January through March

- Schedule wildland firefighter refresher course and pack test on fire personnel annually.
- Schedule basic wildland firefighter training for any interested park employee with approval from his or her supervisor.
- Identify the historic site's fire management coordinator via memorandum to the fire management officer (FMO) at Cape Cod National Seashore.
- Update and submit fire qualifications to the FMO at Cape Cod National Seashore.
- Inventory fire equipment, order needed supplies, and update equipment list. Supplies are ordered through the FMO at Cape Cod National Seashore.

April

- Review wildland fire suppression and mobilization procedures.
- Review Step-Up Staffing Plan and procedures for fire accounts.
- Review fire management plan with Saugus Fire Department.

May through October

- Remain vigilant for potential fire hazards and implement fire prevention.
- Monitor wildland fire potential and implement the Step-Up Staffing Plan as needed.

November and December

- Critique fire season, including all fire management activities (wildland fire suppression, prevention, mobilization, mechanical fuel treatment, etc.)
- Evaluate individual performance of staff to correct deficiencies and recommend personnel for training.
- Review the fire management plan and revise, if necessary.

d. Fire Danger Conditions

The preparedness activities of park personnel will be based on whether extreme fire conditions exist within the FMU. Extreme fire conditions will be based primarily on the National Weather Service National Fire Weather Planning forecast for southern New England (<http://www.erh.noaa.gov/box/fcsts/BOSFWFBOS.html>). The park's fire management coordinator will determine if the wildland fire condition level should be changed. If extreme fire conditions exist, park personnel will follow the Step-Up Plan described in the next Section.

If a wildland fire is located within or adjacent to the FMU during normal fire conditions, the wildland fire condition is automatically changed to extreme and park personnel will follow the Step-Up Plan described in the next Section.

e. Step-Up Staffing Plan

During extreme wildland fire conditions, park personnel will continue to follow fire prevention activities described previously as well as:

- Inform park visitors of the extreme fire condition through prevention signs, reminders, and/or messages.
- Avoid the use of fire as part of his or her work duties.
- Increase the level of monitoring for wildland fires and the illegal or unsafe use of fire and ignition sources by park visitors (for example – fireworks and cigarettes).

If a wildland fire is present within or adjacent to the FMU, park personnel will:

- Immediately call Saugus Fire Department (911) and give a detailed location description of the fire and the closest access point to the fire
- Call the park's fire management coordinator and superintendent or designees and inform them of the wildland fire situation (Appendix F).
- Closely monitor the wildland fire situation from a safe distance until primary fire suppression responders (Saugus Fire Department and/or trained park personnel) arrive.

3. Pre-Attack Plan

Upon discovery of a wildland fire within or adjacent to the FMU and Saugus Fire Department, the park's fire management coordinator, and superintendent or designee have been notified (Appendix E), the Preattack Plan will be followed (Appendix I).

4. Initial Attack

Initial attack of wildland fires is a suppression action consistent with firefighter and public safety and values to be protected.

a. Initial Attack Priorities

The following information will be used to set initial attack priorities:

- General map of Saugus Iron Works National Historic Site (FMU) (Figure 1).
- Map of cultural and historical management zones within the FMU (Figure 2).
- Map of fuel types within the FMU (Figure 3).
- Map of local streets, access areas, water sources, and topography issues within and adjacent to the FMU (Figure 4).

b. Initial Attack Response and the GMP and RMP Objectives

Based on the objectives of the GMP and RMP for Saugus Iron Works National Historic Site [NPS 2002b and NPS 2002c], the following criteria will be used to determine initial attack actions of wildland fires within the FMU.

- Public and firefighter safety.
- Protection of cultural, historical, and natural resources.
- Protection of park infrastructure.
- Protection of private property and residences adjacent to the FMU.

c. Confinement as an Initial Attack Suppression Strategy

A confinement strategy may be implemented as an initial attack action as long as it is not used to meet resource objectives. In a confinement strategy, the fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors. Confinement is selected to maximize firefighter safety, minimize suppression costs, minimize cost + loss in low valued and commodity resource areas, and to maximize availability of critical suppression and management resources during periods of high fire danger associated with fire in highly valued resource areas. Confinement can also be a strategic selection through the Wildland Fire Situation Analysis (WFSA) process when the fire is expected to exceed initial attack capability or planned management capability.

d. Wildland Fire Response Times

Typical wildland fire response times will vary depending on the staffing at the park, availability of local fire fighters from the Town of Saugus, and the time of day. During regular operating hours (9 AM to 5 PM, 7 days a week excluding Thanksgiving, December 25, and January 1) park personnel can respond to wildland fires within 5 minutes. The Saugus Fire Department is able to respond to wildland fires at the historic site within 10 minutes. Reinforcements from Salem Maritime National Historic Site (regular operating hours same as Saugus Iron Works) can respond to wildland fires within 35 minutes.

e. Restrictions and Special Concerns

Suppression strategies during initial attack should be applied so that the equipment and tools used to meet the desired objectives are those that inflict the least impacts upon the park's resources. Minimum impact tactics will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. Due to the presence of sensitive archeological resources within the FMU, fire lines will not be constructed. Since the FMU is small in size, wildland fires will be directly suppressed and structures in closely proximity to the wildland fires will be protected using local water resources.

Fire retardant and foam and heavy equipment, such as crawlers, tractors, dozers, or graders, will not be used in the FMU unless their use is necessary to prevent a fire from destroying privately owned and/or government buildings and historic resources. The use of fire retardant, foam, and heavy equipment requires approval from the superintendent or designee.

Sites impacted by the wildfire or by fire suppression activities will be rehabilitated as necessary, based on an approved course of action for each incident.

5. Extended Attack and Large Fire Suppression

a. Extended Attack Needs

Extended attack needs for wildland fire suppression will be based on:

- Threats to life, property, and natural and cultural resources within the historic site.
- Availability of suppression forces.
- Current and expected fire behavior.

b. Implementation Plan Requirements

A Wildland Fire Situation Analysis (WFSa) will be initiated for all wildland fires that cannot be contained by initial attack resources during the first full burning period. The purpose of the WFSa is to guide the re-evaluation of the suppression

strategies. The Park will complete the WFSA with assistance from the Cape Cod National Seashore FMO and the Northeast Region FMO. The Superintendent is responsible for review and approval of the WFSA.

The WFSA shall be prepared in accordance with the provisions as set forth in the *Federal Wildland and Prescribed Fire Management Policy- Implementation Procedures Reference Guide* and NPS RM-18 (Chapter 9, Section B).

c. Complexity Decision Process from Initial Attack to Extended Attack

The complexity decision process from initial attack to extended attack will follow guidance in RM-18, Chapter 9 (Initial and Extended Attack).

In the event that a fire escapes initial attack, the Superintendent or designee, in consultation with the Regional FMO, will make a determination as to the type of management organization to assign to the incident. The urban interface that surrounds the historic site will dictate the need for Saugus Fire Department to take the lead in fire suppression on incidents that escape initial attack.

d. Limited Delegation of Authority

In extended attack and large fire suppression situations, the Incident Commander (IC) will be briefed by the Superintendent or designee and will be given a written limited delegation of authority. The limited delegation of authority will provide the IC with the Superintendent's priorities, specific restraints, and other guidelines pertaining to extended attack and large fire suppression activities within the historic site.

6. Exceeding Existing WFIP and Selecting a New Strategy

Certain conditions may cause an existing WFIP to be exceeded. This occurs when wildland fires cannot be controlled during the initial suppression response action or where the appropriate management response has not been successful. A new strategy must be developed if a wildland fire exceeds the periodic assessment or the fire leaves the FMU. The WFSA is initiated at this stage.

Priorities for action if a fire requires a new strategy should be based on:

- Public and firefighter safety.
- Protection of private property and residences adjacent to the FMU.
- Natural and cultural resources within the FMU.

7. Minimum Impact Suppression Tactics

All fire management activities will rely on tactics that incur a minimum amount of resource damage while maintaining the safety of firefighters, personnel, and the public as the highest priority. These minimum impact tactics are required for fire management activities within National Park Service lands.

Specific minimum impact tactics for the historic site include:

- Taking advantage of natural barriers, such as adjacent streets, the Saugus River, and other existing fuel breaks.
- Felling Snags and trees only when essential for control of the fire or for safety of personnel.
- Approving the use of fire retardant, foam, and heavy equipment within the historic site by the Superintendent or designee.

8. Rehabilitation Guidelines

The following rehabilitation guidelines will apply to all wildland fire management activities within the historic site after the fire is controlled and contained:

- All litter and trash will be removed.
- Stumps will be flush cut.
- Areas impacted by the wildland fire will be stabilized and rehabilitated, if necessary.

A rehabilitation plan, outlining plant species, techniques, locations, and cost estimates, will be prepared before any action is taken, according to the guidance in RM-18, Chapter 12, Burned Area Rehabilitation. The rehabilitation plan will be in full compliance with NPS Management Policies.

9. Records and Reports

The historic site's FMO is responsible for all fire-related records and reports except the WFIP. This responsibility may be delegated to an incoming incident management team during an extended attack fire. The WFIP will be prepared for every wildland fire and will be the responsibility of resource management personnel (Appendix K).

When a report of a fire is received, the following information should be collected from the reporting party:

- Name, address, and phone number of reporting party.
- Location and extent of fire.
- If the fire is reported in person, ask if the reporting party is willing to show the investigating ranger the location; otherwise, determine if the person can be re-contacted if there are additional questions.

The basic report for documenting a wildland fire is the Individual Fire Report (DI-1202) (Appendix H). The report is valuable as it provides an historical record of the fire regime for the historic site. As such, it is important that all fires that occur within the boundaries be documented using, at a minimum, this form. This includes fires that go out on their own when the location can be documented. The DI-1202 is the basic document used by the Boise Interagency Fire Center to document a fire occurrence. The historic site's FMO and natural resource management staff are responsible for the preparation of the Individual Fire Report. The IC will cooperate with the FMO and natural resource management staff in the completion of the report. Instructions for completing the report are found in RM-18.

The complete Individual Fire Report will contain the following attachments, if applicable:

- Written policies, guidelines, or authority statements signed by the Superintendent or designee.
- Copy of the WFIP.
- Personnel and equipment request orders.
- Fire situation maps.
- Personnel lists.
- Press releases and newspaper clippings.
- Accident reports.
- Weather data reports and records.
- Smoke behavior observations and complaints.
- Rehabilitation plan.

Global Positioning Systems (GPS) and Geographic Information Systems (GIS) will be used to record location data, whenever practical.

The completed draft report will be submitted to the historic site's chief ranger. The chief ranger will review the report for completeness, prepare a final version, and send a copy of the DI-1202 to the Northeast Regional FMO. The Wildland Fire Management Computer System is the central repository for all individual fire experience and training records. The Cape Cod National Seashore FMO is responsible for entering all wildland fire-related training and experience into the computer. Each certified wildland firefighter is responsible for ensuring the information is up to date.

All assistance requests must be documented on the Resource Order Form, NFES 1470. These forms are designed to be transmitted verbally over the telephone. The order form is, in essence, an obligating procurement document. Whenever an out-of-park incident management team is ordered, the Superintendent must provide a written limited delegation of authority and a briefing package to the incoming IC.

C. Wildland Fire Use

The resource objectives of Saugus Iron Works National Historic Site do not permit the use of wildland fire for resource benefits [NPS 2002b and NPS 2002c].

Although wildland fire has been an important component of the ecosystem in the past, wildland fires will be immediately suppressed due to the:

- Health and safety concerns of park personnel and visitors and adjacent residents and property owners.
- Presence of historical structures and park infrastructure.
- Presence of adjacent private properties and residences.

Although wildland fires will be immediately suppressed within the historic site, the natural resources within the historic site will be monitored to determine the effect wildland fires have on these resources and the ecosystem.

D. Prescribed Fire

Currently, the goals and objectives for the use of prescribed fire have not been sufficiently developed at Saugus Iron Works National Historic Site for incorporation into the fire management plan. In the future, prescribed fire could potentially be used in support of ecosystem management to maintain and/or restore plant communities, cycle nutrients, reduce or remove invasive plants, and for a variety of other resource management objectives. The use of prescribed fire does not indicate a decision regarding the appropriateness of prescribe fire at the historic site nor does it preclude incorporation of a prescribed fire program in future revisions of this plan. Any revision to include prescribed fire would require additional NEPA compliance.

E. Non-Fire Fuel Treatment Applications

Park staff will primarily utilize non-fire treatment activities to reduce the amount of hazardous fuels within the historic site. Specific non-fire fuel treatments will include:

- Vegetation manipulation and/or removal.
- Modification of wildland fuels.
- Limiting the spread of invasive species and diseases.

The treatments mentioned above are accomplished using mechanical, biological, and manual methods or a combination of these methods. A Hazard Fuel Reduction Plan will address in more detail non-fire treatment activities within the historic site. These plans will also comply with the NEPA process.

F. Emergency Rehabilitation and Restoration

Burned area emergency stabilization and rehabilitation (ESR) activities are an integral part of wildland fire activities. The objectives of ESR activities are to:

- Prescribe cost-effective post-fire stabilization measures necessary to protect human life, property, and critical cultural and natural resources.
- Promptly stabilize and prevent further degradation to affected resources on lands within the fire perimeter or areas affected directly by wind or water erosion from the burned areas and repair damages caused by fire suppression operations in accordance with approved land management plans and policies and all relevant federal, state, and local laws and regulations.
- Repair or improve lands damaged directly by the wildland fire and unlikely to recover naturally from severe wildland fire damage by emulating historic or pre-fire ecosystem structure, function, diversity, and dynamics according to approved land management plans.
- Restore or establish healthy, stable ecosystems in the burned area, even if these ecosystems cannot fully emulate historic or pre-fire conditions as specified in approved land management plans.

The IC or the historic site's FMO will initiate rehabilitation activities. Rehabilitation activities will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire. These actions may include:

- Install water bars and construct drain dips on control lines to prevent erosion.
- Install check dams to reduce erosion potential in drainages.
- Restore natural ground contours.
- Remove all flagging, equipment and litter.
- Consider and plan more extensive rehabilitation or revegetation to restore sensitive impacted areas.

If revegetation or seeding is necessary, only native plant species will be used. If emergency rehabilitation measures are needed to reduce the effects of a wildland fire, fire management staff at Saugus Iron Works can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The BAER fund is administered through the NPS representative at the National Interagency Fire Center and national BAER team leader.

V. ORGANIZATIONAL AND BUDGETARY PARAMETERS

A. Organizational Structure of the Fire Management Program

1. Superintendent or Designee

The Superintendent is responsible for managing wildland fire programs according to Department policy, RM-18, and policy updates. Major wildland fire duties include:

- Approving the fire management plan and any revisions.
- Selecting and approving action alternatives in regard to the WFSA process.
- Providing direction to the IC.
- Delegating specific authority to the FMO for mobilizing equipment and personnel.
- Implementing and coordinating the fire management plan with Saugus Fire Department.

2. Fire Management Officer (FMO) [Collateral Duty]

The historic site's FMO oversees the fire management program and ensures its coordination with emergency services and resource management programs. The FMO has direct responsibility to plan and implement the historic site's suppression and preparedness plans. Major wildland fire duties include:

- Implementing any fire-related use restrictions.
- Conducting reviews of fires as specified in this plan.
- Ensuring fire equipment readiness.
- Completing Stage 1 of the WFIP.
- Overseeing initial attack fire operations within delegated authority and arranging for additional equipment, personnel, and logistical support as needed.
- Preparing the WFSA after developing alternatives and estimating probability of success.
- Coordinating dispatches of park personnel during wildland fires within the historic site.
- Informing and consulting with the Northeast Regional FMO during wildland fires occurring within the historic site.
- Monitoring fire danger conditions, implementing step-up plan activities, and recommending appropriate use restrictions.
- Ensuring the completion of fire reports and other administrative records.
- Serving as the liaison with other agencies regarding wildland fire activities.
- Preparing and maintaining fire reports and records.
- Coordinating fire management activities with the Superintendent or designee, the Incident Commander, Chief Ranger, and resource management personnel.

- Updating list of wildland fire emergency contact phone numbers.
- Reviewing the fire management plan annually.

3. Incident Commander (IC)

The IC uses strategies and tactics as directed by the Superintendent or designee and the WFSA where applicable to implement selected objectives on a particular incident. A limited delegation of authority (Appendix F) will be provided to each IC prior to assuming responsibility for an incident. The major duties of the IC are given in the National Wildfire Coordinating Group (NWCG) Fireline Handbook [NWCG 1998].

4. Chief Ranger

Works closely with the Superintendent or designee, Fire Management Officer, Incident Commander, and resource management staff to ensure the safety of firefighters, park staff, and the public while wildland fire activities are taking place within the historic site.

5. Resource Management Personnel

Resource management personnel are responsible for protecting and managing the natural and cultural resources within the historic site. Major wildland fire duties include:

- Developing, implementing, and reviewing the fire management plan, hazard fuel reduction plan, and other plans directly related to wildland fire management.
- Complying with NEPA and NHPA policies for all wildland fire and non-fire activities and projects occurring within the historic site.
- Coordinating fire management activities and projects with the FMO and Superintendent or designee.

B. FIREPRO Funding

Currently, all FIREPRO funds for Saugus Iron Works National Historic Site are managed by the Cape Cod National Seashore FMO.

C. Fire Management Organization in Relation to Park Organization

The FMO at the historic site is responsible for wildland fire preparedness, suppression operations, and coordination of suppression operations with mutual aid organizations (Saugus Fire Department). The historic site's resource management staff is responsible for fire management planning and restoration activities.

The FMO and resource management staff coordinate directly with one another as well as with the Superintendent or designee and the Northeast Regional FMO on fire and resource management objectives and all wildland fire implementation actions.

D. Superintendent's Responsibility for Periodic Assessment Signature

The Superintendent is responsible to periodically assess and certify by signature that continued management of wildland fire use actions is acceptable. The Superintendent under certain conditions may delegate this responsibility to another organizational level.

E. Interagency Coordination

Interagency coordination and cooperation is integral to successful implementation of the fire management program at Saugus Iron Works National Historic Site. All fires will require external support by interagency cooperators. Annual review of fire management plan will ensure successful coordination.

F. Key Interagency Contacts

Saugus Fire Department
27 Hamilton Street
Saugus, MA 01906
Emergency Telephone Numbers: 911
Non-Emergency Telephone Number: (781) 941-1199

VI. MONITORING AND EVALUATION

Currently, the National Park Service does not utilize wildland fire or prescribed fire for resource benefits within the historic site. In the future, wildland fire and prescribed fire could potentially be used in support of ecosystem management to maintain and/or restore plant communities, cycle nutrients, reduce or remove invasive plants, and for a variety of other resource management objectives. Any future revision to this fire management plan to include prescribed fire would require additional NEPA compliance.

Although park personnel will not be implementing fire use activities at this time, areas affected by wildland fire will still be monitored to determine the effect the fire has on the ecosystem within the historic site.

VII. FIRE RESEARCH

A. Previous and Ongoing Fire Research

Since the National Park Service acquired the Saugus Iron Works site from the First Iron Works Association in 1968, no fire research has been conducted within the historic site. Also, there are no ongoing fire research projects currently being conducted at the historic site.

B. Fire Research Needs and Opportunities

Information regarding fire effects within the historic site is unknown. This absence of information should not constrain fire program implementation. Rather, as new information becomes available, fire-related resource management objectives can be refined in an adaptive management style.

If it is determined that significant information is needed concerning the effects of fire or fire exclusion, park managers may submit requests through the annual FIREPRO budget call. As research opportunities become available, studies should be undertaken to determine the effects of fire use within the historic site on invasive vegetation, wetlands and riparian areas, water quality, and biodiversity.

Implementation of the fire management plan should not be contingent on completion of research of the local fire regime and fire effects on vegetation. A large body of scientific information already exists regarding effects of fire and fire exclusion for plant associations within the Northeast United States. Although this research was accomplished in other geographic areas outside of the historic site, the results may be carefully applied to Saugus Iron Works.

C. National Park Service Fire Monitoring Handbook

The National Park Service (NPS) Fire Monitoring Handbook is recommended as a source document providing monitoring procedures that meet NPS needs. Monitoring protocols must be reviewed and approved at the Northeast Regional Office level before receiving funding. In addition, fire monitoring activities should result in digital data, including GIS-compatible data.

D. Fire Monitoring Plan

Before park personnel implement any wildland fire monitoring activities within the historic site, a fire monitoring plan will be prepared independent of this fire management plan and will be attached as an appendix to this plan. The fire monitoring plan will be reviewed and approved at the Northeast Regional Office level.

VIII. PUBLIC SAFETY

A. Issues and Concerns

Saugus Iron Works National Historic Site is dedicated to implementing this fire management plan in a manner that ensures the safety of firefighters, park personnel, the visiting public, and adjacent residents and property owners, as well as property within and adjacent to the historic site. The public safety issues and concerns involving wildland and prescribed fire within the historic site include:

- The spread of wildland or prescribed fire to historic and non-historic structures within and adjacent to the historic site.
- The safe evacuation of firefighters, park personnel, nearby residents, and the visiting public from and adjacent to the historic site.
- Reduction in visibility and health concerns for motorists and pedestrians on nearby streets from smoke.
- The presence of emergency personnel and vehicles on streets adjacent to the historic site.

B. Procedures for Mitigating Safety Issues

During extreme fire conditions, the FMO will inform park personnel of potential threats from wildland and prescribed fires. In turn, park personnel will inform visitors of all fire activities and extreme fire conditions on a daily basis through normal communication channels (examples include informal presentations, press releases, and sign postings). Areas of fire activity or extreme fire conditions will be clearly signed. During wildland fires, the public will be kept from entering the fire area. **Under no circumstance will anyone be permitted near a fire without the appropriate training and personal protective equipment.**

Nearby residents will be notified of any wildland fire that poses a threat to burn outside the boundaries of the historic site.

In the event of a wildland or prescribed fire within the historic site, the IC is responsible for evacuating firefighters, park personnel, the visiting public, and adjacent residents safely from the area, if necessary. In addition, the

Superintendent or designee may close all or a portion of the historic site when wildland fire poses an imminent threat to public safety.

IX. PUBLIC INFORMATION AND EDUCATION

A. Capabilities and Needs

The presence of an informed public can go far in providing support for the fire management program at Saugus Iron Works National Historic Site. An intensive effort will be made to educate the public about fire concerns at the historic site, including fire danger messages during periods of drought and the presence of on-going fires. The visiting public will also be made aware of regulations regarding the use of fire within the historic site. Additional information regarding public information capabilities and needs may be found in Section IV-B-2 of this fire management plan.

B. Step-Up Public Information Activities and Capabilities

During extreme fire danger within the historic site:

- Notices will be posted at the visitor contact station.
- News releases will be distributed to the media at the direction of the Superintendent or designee.
- Media access to fire scenes will be facilitated by the FMO when it is safe to do so.
- A staff member will be designated as the contact person for all information requests, when interest is warranted.

Additional information regarding step-up public information activities and capabilities may be found in Section IV-B-2-d of this fire management plan.

X. PROTECTION OF SENSITIVE RESOURCES

A. Archeological, Cultural, and Historical Resources

The National Park Service completed an archeological overview and assessment of Saugus Iron Works National Historic Site in 1997 [Johnson 1997]. Although fire generally has a minimal impact on artifacts located below the soil surface, the greatest impact to archeological resources results from mechanical damage due to vehicle traffic or the excavation of fire lines. All archeological resources described in the overview and assessment plan will be protected and impacts within areas containing sensitive archeological resources will be mitigated through the use of minimum impact protocols. In addition, all unrecorded

archeological sites that are discovered during a fire activity will receive immediate protection.

The cultural resources of the historic site are divided into two distinct areas (Figure 2) [NPS 2002b]. The restored industrial landscape and iron-making buildings are located within the Saugus River floodplain. The second area consists of the Iron Works House, museum, and surrounding landscape and is located in the northwest corner of the historic site adjacent to Central Street. The restored industrial area near the Saugus River is more susceptible to wildland fire than the area surrounding the Iron Works House. This is due to the close proximity of dense, quick burning fuels, such as common reed, cattail, and purple loosestrife, to the industrial area. Fire, heat, and smoke could destroy or damage the structures and landscape surrounding the industrial area. Maintaining firebreaks around the industrial area will mitigate impacts. This can be accomplished by mowing grass and removing dead vegetation around the industrial area structures on a routine basis.

All fire management activities that may potentially affect historic structures and landscapes within the historic site or are eligible for the National Register or the List of Classified Structures (LCS) [NPS 1996] require clearance through the NHPA (Section 106) compliance process. The historic site's cultural resource management staff is responsible for completing NHPA compliance. LCS structures are listed in Appendix G.

See Section IV of this fire management plan for specific actions for preventing or mitigating negative impacts to archeological, cultural, and historical resources within the historic site.

B. Natural Resources

Currently, there are no sensitive natural resources or features that require special treatment or consideration in fire planning and project implementation within Saugus Iron Works National Historic Site. Based on previous plant and animal inventory surveys, there are no Federal threatened or endangered species located within the historic site. In 1988, the waterwort *Elatine americana* (a Massachusetts endangered plant species) was observed within the historic site; however, this plant has not been successfully relocated [Clemants 1997].

The riparian area located near the Saugus River and below the maintenance garage is a unique habitat within the historic site (Figure 1). Wildland fire activities within this habitat will follow appropriate minimum impact tactics and rehabilitation protocols. Additional actions for preventing or mitigating negative impacts to natural resources within the historic site may be found in Section IV of this fire management plan.

C. Developments, Infrastructure, and Other Improvements

The following infrastructure (non-historic structures and equipment) will be protected from the negative impacts of wildland fire within the historic site (Figure 1):

- Maintenance garage and adjacent equipment on west side of Saugus River.
- Structures and equipment within the maintenance yard on east side of Saugus River.
- Blacksmith shop.
- 230 and 232 Central Street (residences and personal property)
- Interpretive exhibits and signs throughout the historic site (including the boats *Alewite* and *Eel*).

Actions to prevent wildland fires from destroying or damaging infrastructure within the historic site include:

- Maintaining firebreaks around infrastructure by mowing and trimming vegetation.
- Removing dead and fallen woody material and leaves.
- Reducing or eliminating large stands of invasive plant species from infrastructure areas using IPM techniques.
- Storing flammable materials in fire-resistant flammable storage cabinets.
- Working safely with open flame and heat sources.
- Implementing fire prevention and staff training activities.

Additional actions for preventing or mitigating negative impacts to infrastructure within the historic site may be found in Section IV of this fire management plan.

XI. FIRE CRITIQUES AND ANNUAL PLAN REVIEW

The Superintendent or designee, FMO, and resource management staff will review all wildfires occurring within the historic site. The purpose of this review is to recognize and document actions that were successful and identify and rectify actions that were unsafe or ineffective. Examples of topics to be evaluated include the initial and extended attack responses, control methods, safety concerns, and protection of resources. Additional topics may also be evaluated and reviewed, if necessary.

The Superintendent or designee will conduct closeout meetings with the IC to ensure a successful transition of the incident back to the staff at the historic site and to identify and evaluate incomplete fire business. Refer to Chapter 13, Exhibit 1 of RM-18 for a sample closeout.

A regional or national level fire review may be conducted if one of the following occurs:

- The fire crosses the park boundary into another jurisdiction without the approval of the landowner.
- The fire resulted in adverse media attention.
- The fire involved serious injury or death, significant property damage, or has the potential to do so.
- The fire results in controversy involving another agency or organization.

For additional information, refer to Chapter 13, Exhibits 2 & 3 of RM-18.

All entrapments and fire shelter deployments will be reported and investigated as soon as possible after the deployment incident. Refer to Chapter 13, Exhibit 4 & 5 of RM-18 for review directions and written outline format.

An informal fire management program review will be conducted annually to evaluate current procedures and identify any needed changes to the fire management plan. A formal fire management review will be conducted every five years. The Superintendent or designee must approve significant changes to this fire management plan. The only exceptions to this procedure will be grammatical corrections, minor procedural changes, and deletions, corrections, and additions to the appendices. Copies of all changes will be promptly forwarded to the Northeast Region FMO. Changes requiring approval and concurrence will be submitted with a new cover sheet for signature and dates, which will replace the original cover sheet upon receipt by the Superintendent or designee.

XII. CONSULTATION AND COORDINATION

Contributors and reviewers of this fire management plan include:

- Daniel Noon, Biological Science Technician, Saugus Iron Works National Historic Site, NPS.
- Steven Kesselman, Superintendent, Salem Maritime and Saugus Iron Works National Historic Sites, NPS.
- Paul Head, Fire Management Officer, Boston Support Office, NPS.
- Bill Fuchs, Biologist, Boston Support Office, NPS.
- David Bogdan, Fire Management Officer, Saugus Iron Works National Historic Site, NPS.
- David Crary, Fire Management Officer, Cape Cod National Seashore, NPS.
- Saugus Fire Department

XIII. APPENDICES

Appendix A – References Cited

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Appendix B – Definitions

Burned Area Emergency Stabilization and Rehabilitation (ESR) Plan -- A document that specifies treatments required to implement post-wildland fire stabilization and rehabilitation policies on an individual incident. This plan may be programmatic (prepared in advance and applicable to clearly defined types of incidents and situations) or prepared by an interdisciplinary team of specialists during or after the control of a wildland fire.

Confine – strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

Contain – To surround a fire, or a part of a fire, and any spot fires therefrom, utilizing control lines, natural or other barriers, which can reasonably be expected to check the fire's spread under prevailing and predicted weather conditions.

Contingency Plans – Provides for the timely recognition of approaching critical fire situations and for timely decisions establishing priorities to resolve those situations.

Control – To complete the control line around a fire, any spot fires therefrom, and any interior islands to be saved; burn out any unburned area adjacent to the fire side of the control line; and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions.

Decision Criteria Checklist (Initial Go/No-Go Decision) – A set of standards evaluation criteria to determine if the current wildland fire meets criteria to be managed for resource benefits. The completion of these criteria will lead to a decision to “Go/Not-Go” with management of the fire for resource benefits.

Duff – The partially decomposed organic material of the forest floor beneath the litter of freshly fallen twigs, needles, and leaves.

Ecosystem – An interacting system of interdependent organisms (community) and the physical set of conditions upon which they are dependent and by which they are influenced.

Extreme Fire Behavior – Implies a level of wildfire behavior characteristics that ordinarily precludes methods of direct control action. One or more of the following is usually involved: high rates-of-spread; prolific crowning and/or spotting; presence of fire whirls; a strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment, behaving erratically and sometimes dangerously.

Fire Danger – A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather, and topography which influence whether fires will start, spread, and do damage; also the degree of control difficulty to be expected.

Fire Ecology – The scientific study of fire's effects on the environment, the interrelationships of plants, and the animals that live in such habitats.

Fire Management Plan (FMP) – A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the general management plan and resource management plan. The plan is supplemented by operational plans, such as preparedness plans, preplanned dispatch plans, prescribed fire plans and prevention plans.

Fire Management Unit (FMU) – Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMUs are delineated in Fire Management Plans (FMP). These units may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives.

Fire Prevention – An active program conducted within the National Park System unit and in conjunction with other agencies to protect human life, prevent modification of the park ecosystem by human-caused wildfires, and prevent damage to cultural resources or physical facilities. Activities directed at reducing fire occurrence include public education, law enforcement, personal contact, and reduction of fire hazards and risks.

Fire Risk – The probability that a wildfire will start as determined by the presence and activities of causative agents.

Fire Retardant – Substance that by chemical or physical action reduces flammability of combustibles.

Firebreak – A natural or constructed barrier utilized to stop or check fires that may occur or to provide a control line from which to work.

Fireline – The part of a control line that is scraped or dug to mineral soil.

FIREPRO – Normal fire-year programming which involves a wildland fire management operations analysis and budget justification process.

Flash Fuels – Fuels, such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash, that ignite readily and are consumed rapidly when dry. Also called fine fuels.

Fuel – The materials that are burned in a fire: duff, litter, grass, dead branches, snags, logs, stumps, weeds, brush, foliage, and, to a limited degree, green trees.

Fuel Model – A simulated fuel complex for which all the fuel characteristics (size, loading, depth, compactness, live-dead ratio, etc.) for the solution of a mathematical fire spread model have been specified. As used in this plan, fuel models are not only a physical description of the vegetation, but also quantify the vegetation's fire behavior characteristics.

Fuel Type – An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

Heavy Fuels – Fuels of large diameter such as snags, logs, and large limbs, which ignite and are consumed more slowly than flash fuels.

Human-caused Fires – Refers to fires ignited accidentally (from campfires or smoking) and by arsonists; does not include fires ignited intentionally by fire management personnel to fulfill approved, documented management objectives (prescribed fires).

Initial Attack – An aggressive suppression action consistent with firefighter and public safety and values to be protected.

Litter – The top layer of the forest floor composed of loose debris, including dead sticks, branches, twigs and recently fallen leaves or needles, little altered in structure by decomposition.

Minimum Impact Tactics – guidelines that assist fire personnel in the choice of procedures, tools, and equipment used in fire suppression and post-fire rehabilitation. These techniques reduce soil disturbance, impact to water quality, noise disturbance, intrusions in the wilderness, and cutting or trampling of vegetation.

Preparedness – Activities that lead to a safe, efficient, and cost effective fire management program in support of land and resource management objectives through appropriate planning and coordination.

Prescribed Fire – The skillful application of fire in a definite area under predetermined weather and fuel conditions to achieve specific management objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Smoke Management Forecast – A forecast issued daily during specific periods advising fire managers of the atmospheric conditions for the next 36 hours with special emphasis on those elements that will affect the dispersal of pollutants from fire.

Snag – A standing dead tree or part of a dead tree from which at least the leaves and smaller branches have fallen.

Wildland Fire – Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Implementation Plan (WFIP) – A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (e.g., fires managed for resource benefits will have Stages II or III of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed).

Wildland Fire Management Program – The integration of fire protection, prescribed fire and fire ecology into land use planning, administration, decision making, and other land management activities. An extension of the concept of wildfire decision making which takes into account resource values, role of fire in the environment, the level of protection required, opportunities for prescribed use of fire, consideration of fire effects, and the efficiency of the fire control operation.

Wildland Fire Situation Analysis (WFSA) – A decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

Wildland Fire Suppression – An appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources.

Wildland Fire Use – The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in pre-defined geographic areas outlined in Fire Management Plans. Operational management is described in the Wildland Fire Implementation Plan (WFIP).

Appendix C – Species List

Since the species list is dynamic in nature and is constantly being updated by NPS staff, a complete and current list of native and non-native organisms within Saugus Iron Works National Historic Site may be obtained by contacting natural resource management staff.

Appendix D – NEPA and NHPA Compliance

Decision Memorandum on Action and for Application of:

Categorical Exclusion 1.12 (or 1.13 or both)

Wildland Fire Management Plan

US Department of the Interior
National Park Service
Saugus Iron Works National Historic Site
Essex County, Massachusetts

Purpose and Need for the Action

The **purpose** of the Wildland Fire Management Plan is to provide staff at Saugus Iron Works National Historic Site long-term direction on how wildland fire and vegetation capable of sustaining wildland fire should be managed within the historic site.

Saugus Iron Works, a unit of the National Park System, was established as a National Historic Site by an Act of Congress on April 5, 1968 “in order to preserve in public ownership the first sustained integrated ironworks in the Thirteen Colonies” (Public Law 90-282). The primary mission of the historic site is to preserve and interpret the archeological sites and features, the historic and reconstructed structures and scene, and the museum collections associated with America’s first sustained, integrated, and successful iron works venture, which operated from 1646 to approximately 1670.

The Wildland Fire Management Plan is required by federal fire policy. Section 5.2.a of Director’s Order 18: Wildland Fire Management states “Every park area with burnable vegetation must have a Fire Management Plan approved by the superintendent.”

Saugus Iron Works National Historic Site is divided into four general landuse areas: landscaped lawns, wetlands, riparian woodlands, and the Saugus River. Two of these areas, the wetlands and riparian woodlands, contain various species and amounts of native and non-native vegetation capable of sustaining wildland fire and are in close proximity to historic structures and infrastructure. In addition, these areas of vegetation are immediately adjacent to private property and homes. For these reasons, Saugus Iron Works has a **need** to manage wildland fire within its boundaries by developing and implementing a Wildland Fire Management Plan.

Compliance with the National Environmental Policy Act

The development and implementation of the Wildland Fire Management Plan is categorically excluded from further documentation under the National Environmental Policy Act (NEPA) in accordance with 516 DM 2, Appendix 1, 1.12 (or 1.13 or both).

Saugus Iron Works National Historic Site is a small 8.51 acre park located within the suburban Town of Saugus, Massachusetts. Due to its geographic location, all wildland fires will be immediately suppressed using minimum impact suppression techniques. Post-fire rehabilitation activities will be implemented to mitigate impacts to resources from wildland fires. In addition, hazardous fuels reduction activities will be implemented by National Park Service staff.

The application of this categorical exclusion is appropriate in this situation because there are no extraordinary circumstances potentially having effects which may significantly affect the environment. None of the exceptions listed in Section D. Mandatory Criteria of the Environmental Screening Form apply. If any of the exceptions apply, then the categorical exclusions cannot be utilized. These extraordinary circumstances are contained in 516 DM 2, Appendix 2.

I considered the effects wildland fire events would possibly have on the health and safety of park visitors and staff, cultural and natural resources and park infrastructure within the historic site and the health and safety and property of adjacent residents within Saugus. The development and implementation of the Wildland Fire Management Plan would minimize the potential for significant effects to the resources above.

Persons and Agencies Consulted

A Wildland Fire Management Plan public scoping session was held on August 21, 2003 at the Saugus Iron Works National Historic Site museum theater. The scoping session was advertised in the local newspaper on two separate occasions (August 7 and August 14). In addition, the news release was sent to Saugus town officials and adjacent residents. The Saugus Fire Department fire chief was also consulted on the development and implementation of the Wildland Fire Management Plan.

Decision and Rationale on Action

I have decided to implement the Saugus Iron Works National Historic Site Wildland Fire Management Plan. The Wildland Fire Management Plan meets the need for action. In addition, I have reviewed the plan conformance statement and have determined that the Wildland Fire Management Plan is in conformance with the approved Saugus Iron Works National Historic Site General Management Plan/Environmental Assessment and that no further environmental analysis is required.

Implementation Date

The Saugus Iron Works National Historic Site Wildland Fire Management Plan will be implemented on or after October 1, 2004.

/s/ Steven Kesselman (signed original on file)

9/14/2004

Steven Kesselman
Superintendent, Saugus Iron Works National Historic Site

Date

Administrative Review or Appeal Opportunities

This decision is not subject to administrative appeal.

Contact Person

For additional information concerning this decision, contact Daniel Noon, Biological Science Technician, Saugus Iron Works National Historic Site, 244 Central Street, Saugus, MA 01906. Telephone: (781) 231-7339.

**NATIONAL PARK SERVICE (NPS)
SAUGUS IRON WORKS NATIONAL HISTORIC SITE (SAIR)
ENVIRONMENTAL SCREENING FORM (ESF)**

Sections A and B should be filled out by the project initiator (may be coupled with other park project initiation forms). Sections C-I are to be completed by the interdisciplinary team members.

A. PROJECT INFORMATION

Park Name: **Saugus Iron Works National Historic Site (SAIR)**

Project/PMIS Number: **None**

Project Type (Check):

☐ Cyclic

☐ Cultural Cyclic

☐ Repair/Rehab

☒ ONPS

☐ NRPP

☐ CRPP

☐ FLHP

☐ Line Item

☐ Fee Demo

☐ Concession Reimbursable

☐ Other (specify) _____

Project Location: **Saugus Iron Works National Historic Site (SAIR)**

Project Originator/Coordinator: **Daniel Noon**

Project Title: **Saugus Iron Works National Historic Site Fire Management Plan**

Contract #: **None**

Contractor Name: **None**

Administrative Record Location: **SAIR Natural Resource Management files**

Administrative Record Contact: **Daniel Noon, (781) 231-7339**

B. PROJECT DESCRIPTION/LOCATION *[To begin the statutory compliance file, attach to this form, maps, site visit notes, agency consultation, data, reports, categorical exclusion form (if relevant), or other relevant materials.]*

Development and implementation of wildland fire management plan for Saugus Iron Works National Historic Site.

Preliminary drawings attached? ☐ Yes ☒ No

Background info attached? ☒ Yes ☐ No

Date form initiated: **August 26, 2004**

Anticipated compliance completion date: **Sept. 30, 2004**

Projected advertisement/Day labor start: **N/A**

Projected construction start: **N/A**

Is project a hot topic (controversial or sensitive issues that should be brought to attention of Regional Director)? ☐ Yes ☒ No

C. POTENTIAL RESOURCE EFFECTS TO CONSIDER *(Please see section F (Instructions for Determining Appropriate NEPA Pathway) prior to completing this section. Also, use the process described in DO-12, 2.9 and 2.10; 3.5; 4.5(G) to (G) (5) and 5.4 F to help determine the context, duration, and intensity of effects on resources.)*

Identify potential effects to the following physical, natural or cultural resources? ¹	No Effect	Negligible Effects	Minor Effects	Exceeds Minor Effects	Data Needed to Determine
Geological resources – soils, bedrock, streambeds, etc.			√(1)		
From geohazards	√				
Air quality			√(2)		
Soundscapes		√(3)			
Water quality or quantity			√(4)		
Streamflow characteristics	√				
Marine or estuarine resources		√(5)			
Floodplains or wetlands		√(6)			
Land use, including occupancy, income, values, ownership, type of use	√				
Rare or unusual vegetation – old growth timber, riparian, alpine	√				
Species of special concern (plant or animal; state or federal listed or proposed for listing) or their habitat	√				
Unique ecosystems, biosphere reserves, World Heritage Sites	√				
Unique or important wildlife or wildlife habitat		√(7)			
Unique, essential or important fish or fish habitat		√(8)			
Introduce or promote non-native species (plant or animal)		√(9)			
Recreation resources, including supply, demand, visitation, activities, etc.		√(10)			
Visitor experience, aesthetic resources		√(11)			
Archeological resources		√(12)			
Prehistoric/historic structures	√				
Cultural landscapes		√(12)			
Ethnographic resources	√				
Museum collections (objects, specimens, and archival and manuscript collections)	√				
Socioeconomics, including employment, occupation, income changes, tax base, infrastructure	√				
Minority and low income populations, ethnography, size, migration patterns, etc.	√				
Energy resources	√				
Other agency or tribal land use plans or policies	√				

Identify potential effects to the following physical, natural or cultural resources? ¹	No Effect	Negligible Effects	Minor Effects	Exceeds Minor Effects	Data Needed to Determine
Resource, including energy, conservation potential, sustainability	√				
Urban quality, gateway communities, etc.	√				
Long-term management of resources or land/resource productivity			√(13)		
Other important environmental resources (e.g. geothermal, paleontological resources)?	√				

¹ Potential effects are identified by the interdisciplinary team through the analysis process described in DO-12 §2.9 and §4.5(G) (4) to (G) (5). For example, negligible effects would be at the lowest levels of detection (barely detectable) and localized. Minor effects would affect a relatively small number of resources, features, or individuals of populations and the effects would be localized and not have an appreciable impact.

Comments for Section C above:

- (1) The extent of soil erosion occurring within Saugus Iron Works National Historic Site would be greatly minimized because minimum impact tactics would be implemented during wildland fire suppression activities and a post-suppression rehabilitation plan would be utilized.

Direct and non-direct impact to soils from non-fire fuel treatments would be negligible and short-term in duration. During non-fire fuel treatments, the root structure of many plant species would be left in place and only the surface fuels would be removed. Leaving root structures in place would increase soil stabilization and reduce the likelihood of erosion. In addition, the use of heavy equipment to remove hazardous fuels within sensitive soil areas would be restricted or limited.

- (2) Although a wildland fire management plan would be fully implemented, short-term negative impacts to air quality would occur from wildland fires burning within the area. Normally, smoke impacts to the historic site and surrounding communities would be minimized, as most fires would be kept relatively small in size (less than 1 acre/ 0.4 ha in size). Wildland fires that escape initial attack or that must be placed in confinement or under a containment strategy due to firefighter safety concerns or lack of resources would gain size in acreage and consequently could increase quantities of air pollution released into the air. Air pollution increases would normally last only a few hours to a few days or until the fire is contained, depending on the size and intensity of the fire.

Smoke from wildland fires could reduce visibility within the historic site and surrounding areas. The extent of impact to visibility would depend on fire size, duration, and location. Most small fires would produce some visible smoke where the fire was located, but would have minimum impact on air quality or overall visibility. Larger fires would impact views for a larger area downwind of the wildland fire.

Routine removal of hazardous fuels from within the historic site will greatly reduce the amount of vegetation capable of burning. Reducing the amount of burnable vegetation, in turn, will have less short-term negative impacts on air quality if a wildland fire occurs within the area.

- (3) Wildland fire suppression, hazardous fuel removal, and emergency rehabilitation activities may have a negative negligible short-term impact on soundscapes within Saugus Iron Works.

- (4) Minimum impact tactics and rehabilitation activities would be implemented to reduce the level of negative impacts to surface water and groundwater quality and flow. The development and implementation of minimum impact tactics and rehabilitation activities would reduce soil erosion, sedimentation, and contamination during suppression and post-suppression activities. Water and/or fire retardant would be strategically applied to gain the greatest level of success during suppression activities. Equipment refueling and routine maintenance operations during suppression activities will be carefully completed to minimize possible spillage and contamination of water resources. Fluid spills would be quickly contained and cleaned up by following emergency fuel spill response guidelines.
- (5) Wildland fires may have a negative negligible impact to estuarine resources within Saugus Iron Works, primarily due to minor levels of soil erosion and sedimentation in the Saugus River from any exposed soils caused by the wildland fires.
- (6) Wildland fires may have a negative negligible short-term impact to floodplains and wetlands within Saugus Iron Works, primarily due to minor levels of soil erosion and sedimentation in the Saugus River from any exposed soils caused by wildland fires.
- (7) Removal of hazardous fuels from specific areas within Saugus Iron Works would have negative and positive effects on wildlife, depending on the wildlife species. Removal of large, dense stands of common reed (*Phragmites australis*) and narrow-leaved cattail (*Typha angustifolia*) would have negative effects on certain species of perching birds, such as red-winged blackbirds (*Agelaius phoeniceus*), which depend on the dense vegetation for cover. Removal of multiflora rose (*Rosa multiflora*) would negatively affect other perching birds which use the exotic shrub as a food source and habitat cover. However, removing dense stands of exotic invasive vegetation would reduce the hazardous fuel level within the historic site and allow a greater diversity of native plant species to grow and reproduce, thereby providing the necessary food and shelter for native wildlife.
- (8) Using minimum impact tactics during wildland fire suppression would reduce the level of negative impact on fish and other aquatic organisms, because soil erosion and sedimentation would be closely monitored and mitigated during suppression activities. Emergency rehabilitation of areas impacted by wildland fires and firefighters would mitigate the negative effect on wildlife and their habitats.
- (9) Wildland fires may enhance growth of exotic invasive plant species, such as common reed (*Phragmites australis*), which usually goes through rapid growth immediately after wildland fires. This would be a long-term negligible impact since common reed has already been established within Saugus Iron Works and has occurred in dense stands for the last several years.
- (10) Wildland fires and fire suppression activities may have a short-term minor impact to visitation and interpretive and recreational activities. Portions of the historic site, or if necessary, the entire site may need to close during and immediately after suppression activities. Hazardous fuel removal and emergency rehabilitation activities may have a negative negligible short-term impact on visitation and interpretive and recreational activities.
- (11) Wildland fires and fire suppression, hazardous fuel removal, and emergency rehabilitation activities may have a short-term minor impact to visitor experience and aesthetic values. The visitor may observe signs of current or previous wildland fire activity, including: smoke, reduced visibility, and charred vegetation and topography.
- (12) Wildland fires and fire suppression activities may have a negative short-term negligible impact on archeological resources and cultural landscapes. The use of minimum impact tactics during fire suppression would minimize impacts to these resources. Emergency rehabilitation activities after suppression would mitigate the impacts to these resources.
- (13) The implementation of the wildland fire management plan would have a positive minor long-term impact on the long-term management of park resources within Saugus Iron Works. Since fire is not major part of the natural ecosystem of the historic site, fire management would play a minor role in management decisions and activities.

D. MANDATORY CRITERIA

Mandatory Criteria: If implemented, would the proposal:	Yes	No	Comment or Data Needed to Determine
A. Have material adverse effects on public health or safety?		√	
B. Have adverse effects on such unique characteristics as historic or cultural resources; park, recreation, or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands; floodplains; or ecologically significant or critical areas, including those listed on the National Register of Natural Landmarks?		√	
C. Have highly controversial environmental effects?		√	
D. Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks?		√	
E. Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects?		√	
F. Be directly related to other actions with individually insignificant, but cumulatively significant, environmental effects? (<i>Note: consider specific occurrences of past impacts to resources in your analysis.</i>)		√	
G. Have adverse effects on properties listed or eligible for listing on the National Register of Historic Places?		√	
H. Have adverse effects on species listed or proposed to be listed on the List of Endangered or Threatened Species or have adverse effects on designated Critical Habitat for these species?		√	
I. Require compliance with Executive Order 11988 (Floodplain Management), Executive Order 11990 (Protection of Wetlands), or the Fish and Wildlife Coordination Act?		√	
J. Threaten to violate a federal, state, local, or tribal law or requirement imposed for the protection of the environment?		√	
K. Involve unresolved conflicts concerning alternative uses of available resources (NEPA sec. 102(2) (E))?		√	
L. Have a disproportionate, significant adverse effect on low-income or minority populations (EO 12898)?		√	
M. Restrict access to and ceremonial use of Indian sacred sites by Indian religious practitioners or adversely affect the physical integrity of such sacred sites (EO 130007)?		√	
N. Contribute to the introduction, continued existence, or spread of federally listed noxious weeds (Federal Noxious Weed Control Act)?		√	
O. Contribute to the introduction, continued existence, or spread of non-native invasive species or actions that may promote the introduction, growth or expansion of the range of non-native invasive species (EO 13112)?		√	
P. Require a permit from a federal, state, or local agency to proceed, unless the agency from which the permit is required agrees that a CE is appropriate?		√	
Q. Have the potential for significant impact as indicated by a federal, state, or local agency or Indian tribe?		√	
R. Have the potential to be controversial because of disagreement over possible environmental effects?		√	
S. Have the potential to violate the NPS Organic Act by impairing park resources or values?		√	

E. OTHER INFORMATION (Please answer the following questions/provide requested information.)

Are personnel preparing this form familiar with the site? ☒ Yes ☐ No

Did personnel visit site? ☐ Yes ☒ No (If yes, attach meeting notes re: when site visit took place, who attended, etc.)

Is the project in an approved plan such as a General Management Plan or an Implementation Plan with an accompanying NEPA document? ☒ Yes ☐ No If so, plan name: **Saugus Iron Works National Historic Site General**

Management Plan & Environmental Assessment

Is the project still consistent with the approved plan? ☒ Yes ☐ No (If no, you may need to prepare plan/EA or EIS.)

Is the environmental document accurate and up-to-date? ☒ Yes ☐ No (If no, you may need to prepare plan/EA or EIS.)

FONSI ☒ ROD ☐ (Check one) Date approved: **April 23, 2002**

Are there any interested or affected agencies or parties? ☒ Yes ☐ No

Did you make a diligent effort to contact them? ☒ Yes ☐ No ☐ NA

Has consultation with all affected agencies or tribes been completed? ☒ Yes ☐ No ☐ NA (If so, attach additional pages re: consultations, including the name, dates, and a summary of comments from other agencies or tribal contacts.)

Are there any connected, cumulative, or similar actions as part of the proposed action (e.g. other development projects in area or identified in GMP, adequate/available utilities to accomplish project)? ☐ Yes ☒ No (If so, attach additional pages detailing the other actions.)

F. INSTRUCTIONS FOR DETERMINING APPROPRIATE NEPA PATHWAY

Complete the following tasks: conduct a site visit or ensure that staff is familiar with the site's specifics; consult with affected agencies, and/or tribes; and interested public and complete this environmental screening form.

First, always check DO-12, section 3.2, "Process to Follow" in determining whether the action is categorically excluded from additional NEPA analyses. Other sections within DO-12, including Sections 2.9 and 2.10; 3.5; 4.5(G) (4) and (G) (5), and 5.4(F), should also be consulted in determining the appropriate NEPA pathway. Complete the following tasks: conduct a site visit or ensure that staff is familiar with the site's specifics; consult with affected agencies, and/or tribes; and interested public and complete this environmental screening form.

If your action is described in DO-12 section 3.3, "CE's for Which No Formal Documentation is Necessary," follow the instructions indicated in that section.

If your action is not described in DO-12, section 3.3, and IS described in section 3.4, AND you checked yes or identified "data needed to determine" impacts in any block in section D (Mandatory Criteria), this is an indication that there is potential for significant impacts to the human environment, therefore, you must prepare an EA or EIS or supply missing information to determine context, duration and intensity of impacts.

If your action is described in section 3.4 and NO is checked for all boxes in section D (Mandatory Criteria), AND there are either no effects or **all** of the potential effects identified in Section C (Potential Resource Effects to Consider) are of negligible to minor intensity, usually there is no potential for significant impacts and an EA or EIS is not required. If, however, during internal scoping and further investigation, resource effects still remain unknown, or are at the minor to moderate level of intensity, and the potential for significant impacts may be likely, an EA or EIS is required.

In all cases, data collected to determine the appropriate NEPA pathway must be included in the

administrative record.

G. INTERDISCIPLINARY TEAM SIGNATORIES (All interdisciplinary team members must sign.)

By signing this form, you affirm the following: you have either completed a site visit or are familiar with the specifics of the site; you have consulted with affected agencies and tribes; and you, to the best of your knowledge, have answered the questions posed in the checklist correctly.

Interdisciplinary Team Leader Name	Discipline/Field of Expertise	Date
/s/ Daniel Noon	Natural Resources	9/1/2004
Technical Specialists Names	Discipline/Field of Expertise	Date
/s/ Carl Salmons-Pérez	Cultural Resources	9/1/2004
/s/ Amy Curry	Park Ranger/Education Coordinator	9/8/2004
/s/ David A. Bogdan	Park FMO	9/9/2004

H. This section may be filled out either as the project progresses or when environmental documentation is complete.

National Environmental Policy Act

Data entered by: Daniel Noon

(Choose one and fill in blanks)

☒ CE Complete sections A-F before checking this box.

DOI Manual 526 Section 1.12: Hazardous fuel reduction activities using prescribed fire not to exceed 4,500 acres, and mechanical methods for crushing, piling, thinning, pruning, cutting, chipping, mulching, and mowing, to exceed 1,000 acres.

DOI Manual 526 Section 1.13: Post-fire rehabilitation activities not to exceed 4,200 acres (such as tree planting, fence replacement, habitat restoration, heritage site restoration, repair of roads and trails, and repair of damage to minor facilities such as campgrounds) to impair or improve lands unlikely to recover to a management approved condition from wildland fire damage, or to repair or replace minor facilities damaged by fire.

(Note: actions categorical excluded under NEPA must still be reviewed for compliance with Section 106.)

☐ EA Public scoping date: _____
EA release to public: _____ FONSI date: _____

☐ EIS NOI in FR: _____ NOA for DEIS: _____
NOA for FEIS: _____ ROD date: _____

Will the EA/EIS be used as the Section 106 compliance document? ☐ Yes ☐ No If yes, you must notify in advance the SHPO/THPO and ACHP of your intent to do so (36 CFR 800[c]). Date notified: _____

National Historic Preservation Act

Data entered by: Carl Salmons-Pérez

Has the area been surveyed and NHPA resources identified? ☒ Yes ☐ No

Archeological resources affected? ☐ Yes ☒ No

Historic structures affected? ☐ Yes ☒ No

Cultural landscapes affected? ☐ Yes ☒ No

Ethnographic resources affected? ☐ Yes ☒ No (If yes, interested parties contacted? ☐ Yes ☐ No)

Choose one of the following for determination of effect on National Register eligible or listed resources:

☒ No Historic Properties Affected

☐ No Adverse Effect

☐ Programmatic Exclusion (Exclusion # _____)

Date, if appropriate, of letter to SHPO/THPO & ACHP declaring intention of using EA/EIS as Section 106 compliance document: _____

Date AEF or combined EA/AEF to SHPO/THPO: _____

Date of response from SHPO/THPO: _____

Date mitigation completed: _____

☐ Adverse Effect

Date, if appropriate, of letter to SHPO/THPO & ACHP declaring intention of using EA/EIS as Section 106 compliance document: _____

Date AEF or combined EA/AEF to SHPO/THPO: _____

Date to ACHP, if necessary: _____

MOA Date: _____

Date mitigation completed: _____

Endangered Species Act

Data entered by: **Daniel Noon**

Any threatened/endangered species in area? ☐ Yes ☒ No

If species in area ☐ No effect ☐ Not Likely to Adversely Affect ☐ Likely to Adversely Affect
(If checked, consider EIS)

Date to FWS/NMFS: _____

Date FWS/NMFS Response: _____

Floodplains/Wetlands/§404 Permits

Data entered by: **Daniel Noon**

Is project in 100- or 500-year floodplain, flash flood hazard area, or wetlands?

☐ Yes ☐ No ☒ Exempt (See Floodplain Management Guideline, V. Scope, B. Excepted Actions)

If yes, statement of findings approval date: _____

404 permit needed? ☐ Yes ☒ No Date _____

State 401 permit/certification? ☐ Yes ☒ No Date _____

Note: if 404 permit is needed so is 401 permit.

Tribal Water Quality permit? ☐ Yes ☒ No Date _____

CZM Consistency determination needed? ☐ Yes ☒ No Date _____

Other Permits/Laws

Data entered by: **Daniel Noon**

Consistent with Wilderness Act ☐ Yes ☒ No Date _____

Wilderness minimum requirement (tool) decision needed? ☐ Yes ☒ No Date _____

Wild and scenic river concerns? ☐ Yes ☒ No Date _____

National Trails concerns? ☐ Yes ☒ No Date _____

Air Quality consult w/State? ☐ Yes ☒ No Date _____

Consistent w/Architectural Barriers, Rehabilitation, and Americans with Disabilities Acts? ☐ Yes ☒ No Date _____

Other _____ ☐ Yes ☐ No Date _____

I. MITIGATING MEASURES TO BE INCLUDED IN PROJECT:

(Specify here or attach or reference appropriate pages from EA, EIS, FONSI, or ROD)

The wildland fire management plan will utilize minimum impact suppression tactics and emergency rehabilitation guidelines to mitigate impacts to park resources.

J. SUPERVISORY SIGNATORY

Based on the environmental impact information contained in the statutory compliance file and in this environmental screening form, environmental documentation for the subject project is complete. If the project involves hot topics or sensitive issues, I have briefed the deputy or regional director.

Recommended:

Compliance Specialist	Telephone Number	Date
/s/ Daniel Noon	(781) 231-7339	9/13/2004

Approved:

Superintendent	Telephone Number	Date
/s/ Steven Kesselman (original on file)	(978) 740-1680	9/14/2004



National Park Service
U.S. Department of the Interior

Saugus Iron Works
National Historic Site

244 Central Street
Saugus, MA 01906

781-233-0050 phone
781-231-7345 fax

Saugus Iron Works News Release

Release date: Immediate

Contact(s): Daniel Noon

Phone number: 781- 231- 7339

Date: August 1, 2003

Saugus Iron Works National Historic Site Seeks Public Comment on Fire Management Program

Saugus Iron Works National Historic Site is in the process of writing a Wildland Fire Management Plan, as required by Federal fire policy. The Fire Management Plan will define how Saugus Iron Works develops and conducts specific fire management programs, such as suppression, prevention, and fuels management activities. Saugus Iron Works National Historic Site will be conducting a scoping session where the public can express their interests, concerns, and points of view concerning fire management within the site.

The session will be held on Thursday, August 21, in the Saugus Iron Works museum auditorium at 7:00 PM. Guest registration will be from 7:00 to 7:30 PM, followed by a brief presentation on the different types of fire management programs the National Park Service commonly uses throughout the country. After the presentation, guests will be encouraged to visit with Saugus Iron Works staff, ask questions, and provide input to our planning process.

** NPS **

EXPERIENCE YOUR AMERICA

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

Appendix E – Wildland Fire Emergency Call-Up List

Name	Title	Office Phone	Home Phone	Cell Phone
Steven Kesselman	Superintendent	(978) 740-1680		
David Bogdan*	Fire Management Officer	(781) 231-7352		
Michael Parr	Chief Ranger	(978) 740-1696		
Daniel Noon*	Biological Science Technician	(781) 231-7339		
Carl Salmons-Pérez	Chief of Cultural Resources Management	(781) 231-7350		
Tim Thornhill	Facility Manager	(978) 740-1671		
Dan Mazzotti	Maintenance Supervisor	(781) 231-7352		
Jim Cormier	Maintenance Work Leader	(781) 231-7352		
Curtis White	Park Ranger	(781) 231-7342		
Rick Saulnier*	Carpenter	(781) 231-7352		

***Names in bold are wildland firefighters.**

NOTE: Home and cell phone numbers have been removed to protect the privacy of NPS staff. These numbers will be added to the final internal fire management plan.

Appendix F – Limited Delegation of Authority

Saugus Iron Works National Historic Site
LIMITED DELEGATION OF AUTHORITY

Date: _____

To: _____, Wildland Fire Incident Commander

From: _____, Superintendent or Designee of
Saugus Iron Works National Historic Site

Name of Wildland Fire: _____

Subject: Limited Delegation of Authority for Wildland Fire Suppression

As Superintendent or Designee, I am responsible to protect the historic site's resources and the lives of its visitors and employees. Your expertise in management of fires will assist me in fulfilling that responsibility during the present emergency situation.

By means of this memorandum, I delegate to you the authority to carry out control of the fire or complex of fires named above in accordance with Department of Interior and National Park Service policies and guidelines provided in the Agency Administrator's briefing and the wildland fire situation analysis. These documents will provide you with information on the current situation, management objectives and priorities, and constraints necessary to protect the historic site's resources. You will find additional guidelines, concerns and constraints, if any, attached. A list of personnel assigned to assist you and of facilities available for use is also attached.

Upon the arrival of the entire team, I will conduct an outside briefing for you and your overhead organization. Local fire bosses will conduct a fire line briefing for you and your staff.

Additional considerations follow:

1. Your first priority at all times is safety of firefighters and the public.
2. My Agency Advisor for you is _____, whose title is _____
_____. He/she has full authority to act for me
in my absence.
3. My Resource Advisor for you is _____, whose title is
_____.
4. Consistent with the suppression strategy, minimize environmental impacts. Use natural barriers and cold trail when possible. Avoid opening corridors along trails. Cut stumps to ground level, and remove trash from fire lines daily, If not already addressed, specific needs for rehabilitation will be identified.
5. Emergency funds are available, but you should be prepared to make full explanation and provide accountability for any and all expenditures.
6. Dozers and all- terrain or off- road vehicles shall not be used without specific authorization except for a threat to life and habitable and/or historic structures. Use of aircraft, power saws and pumps, and generators are authorized as needed.
7. Please try to minimize impacts to visitors and neighbors.
8. I expect you to assume management of the fire by this time: _____
9. All fire lines will be rehabilitated, according to National Park Service policy and plans approved by my Resource Advisor.
10. Manage the fire with minimum disruption to visitor access and historic site operations, consistent with public safety. You may close areas if necessary for public safety by authority of 36 CFR. You must notify me prior to implementing any closure.
11. My Resource Advisor must approve environmentally compatible fire retardant use.
12. Incident base and staging areas will be confined to: _____

13. Public information must be closely coordinated with the Agency Advisor.
14. Notify me of any threats to life or property as soon as possible.
15. Provide training opportunities for personnel when possible to strengthen our organizational capabilities.
16. A closeout fire analysis and evaluation will be conducted by me or my representative prior to the incident team departure. I request a 24- hour advance notice of the meeting.
17. Key resource restraints are:
- a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
18. Cultural features requiring priority protection are:
- a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
19. A determination will be made as to the necessity of rehabilitation of burned areas. If it is determined that rehabilitation of burned areas is necessary then a Burned Area Emergency Rehabilitation Report will be prepared for short and long- term rehabilitation requirements. This report will be submitted within 24 hours of control of the fire.

Signatures:

Superintendent or Designee

Date

Incident Commander

Date

Appendix G – List of Classified Structures (LCS)

<u>IDLCS#</u>	<u>Structure Name</u>
05426	Iron Works House
05427	Slag Pile
05428	Blast Furnace and Charging Bridge
05429	Forge
05430	Rolling and Slitting Mill
05431	Warehouse
40300	Contact Station
40301	Museum
40302	Wharf
40303	Well/Cistern
40304	Small Bridges over Tailraces
40305	Corduroy Road
40306	Furnace Sluiceway and Tailrace
40307	Forge Sluiceways and Tailraces
40308	Slitting Mill Sluiceway and Tailrace
40309	Stone Wall at West Bluff
40310	Retaining Wall at Old Central Street Terminus
40311	Bridges over Saugus River
40312	Saugus River Stone Bulkhead
40313	Wood Retaining Wall/Bulkhead
40314	Stabilized Foundations at West Bluff
40315	Jenks Area Foundations and Rock-Lined Pit
40316	Museum Annex

Appendix H – Individual Fire Report

<div>UNITED STATES DEPARTMENT OF THE INTERIOR DI-1202 INDIVIDUAL FIRE REPORT</div> <div>1. STATUS CODE _ 2. REPORTING AGENCY _</div>	<div>3.a. UNIT B. SUB-UNIT C. YEAR D. FIRE NUMBER</div> <div>__ _ _ _ _ _ _ _ _ _</div>	<div>4. TYPE 5. CAUSE 6. PEOPLE 7. NRVC</div> <div>_ _ _ _ _ _</div>
--	---	--

8. STATISTICAL DATA				
	a. STATE	b. OWNER	c. VEGETATION	d. ACRES BURNED
	_ _	_	_	_ _ _ _ _ . _
	_ _	_	_	_ _ _ _ _ . _
	_ _	_	_	_ _ _ _ _ . _
	_ _	_	_	_ _ _ _ _ . _
	_ _	_	_	_ _ _ _ _ . _
	_ _	_	_	_ _ _ _ _ . _
	_ _	_	_	_ _ _ _ _ . _
	_ _	_	_	_ _ _ _ _ . _

9. AGENCY DATA					
a. FIRE NAME	b. AREA NAME	c. LATITUDE	LONGITUDE	d. TWNSHP	RANGE SECTION MERIDIAN
_ _ _ _ _	_ _ _	_ . _ . _	_ . _ . _	_ _ _	_ _ _ _ _ _
e. COST CODE	f. OWNER	g. FY	h. FISCAL DATA	i. UTM	Z _ _ E _ _ . _ _ N _ _ . _ _
_	_	_ _ _	_ _ _ _ _		

10. FIRE MANAGEMENT DATA					
	DATE	TIME	TYPE	AMT XXXXXXXXXX XXXXXXXXXX	ACRES
a. DISCOVERY/START	_ _ _ _ _	_ _ _ _	_		_ _ _ _ _ . _
b. INITIAL ATTACK	_ _ _ _ _	_ _ _ _	1 2 3	1 2 3	_ _ _ _ _ . _
c. CONTROLLED	_ _ _ _ _	_ _ _ _			_ _ _ _ _ . _
d. DECLARED OUT	_ _ _ _ _				

11. SITE DATA								
a. TOPOGRAPHY	b. ASPECT	c. SLOPE	d. ELEVATION	e. STATION	f. MSGC	g. BEHAVIOR	h. B. I.	i. ADJ CLASS
_	_	_	_	_ _ _ _ _	_ _ _ _	_	_	_

12. PREVENTION DATA			
k. DAY OF WEEK	l. WAS FIRE INVESTIGATED (Y/N)	m. FIRE CAUSE SUSPECT, KNOWN OR UNKNOWN (K/U)	n. SUSPECT = RESIDENT, TRANSIENT OR UNKNOWN (R/T/U)
_	_	_	_

13. PRESCRIBED FIRE DATA				
c. PLOT/ BURN OBJECTIVE	d. FIRING TYPE	e. COST/ACRE	f. FBPS FUEL MODEL	l. PROJECT #
_ _	_ _	_ _ _ _ . _ _	_ _ _ _	
m. COMPLEXITY / FIRE MANAGEMENT AREA	n. FUEL LOADING FOR EMISSIONS			o. BENEFITTING PROGRAM
	SIZE CLASS OF FUELS	PRE-BURN LOADING TONS PER ACRE	CONSUMPTION PERCENT	
	Shrub/Herb	_ _ _ . _	_ _ _	
	0 - 1	_ _ _ . _	_ _ _	
	1.1 - 3.0	_ _ _ . _	_ _ _	
	3.1 - 9.0	_ _ _ . _	_ _ _	
	9+	_ _ _ . _	_ _ _	
	LITTER & DUFF (INCHES)	_ _ _ . _	_ _ _	

NARRATIVE - Enter information about the fire.

TITLE INFORMATION - (Mandatory)

Submitted by:

Submitted Title:

Submitted Date:

Entered by:

Entered Title:

Entered Date:

MAP: - (Optional)

LOCATION PLAT SCALE: " = 1 MILE

[illegible]

Appendix I – Wildland Fire Pre-Attack Plan

Saugus Iron Works National Historic Site Wildland Fire Pre-Attack Plan

Upon discovery of a wildland fire with Saugus Iron Works National Historic Site, all subsequent actions will be based on the following:

1. The Incident Commander (IC) will locate, size-up, and coordinate suppression actions. The IC will complete the attached pre-attack planning checklist.
2. All personnel will provide for public safety.
3. Considering the current and predicted fire con, the IC will assess the need for additional suppression resources and estimate the final size of the fire. The potential for spread outside of the historic site should be predicted, as well as the total suppression force required to initiate effective containment action at the beginning of each burning period.
4. The IC will assess the need for law enforcement personnel for traffic control, investigations, evacuations, etc. and make the request to the Fire Management Officer (FMO).
5. The IC or FMO will document decisions and complete the fire report (DI-1202).
6. Should a wildland fire move into an extended attack, a Limited Delegation of Authority will be invoked. Once a Limited Delegation of Authority has been authorized, the IC will make the final decisions pertaining to the fire. A copy of the Limited Delegation of Authority is in Appendix F.

Appendix J – Wildland Fire Implementation Plan (WFIP)

SAUGUS IRON WORKS NATIONAL HISTORIC SITE WILDLAND FIRE IMPLEMENTATION PLAN (WFIP)

STAGE I

Fire Situation

Fire Name:		
Fire Number:		

Jurisdiction(s):	

Administrative Unit (FMU):	Saugus Iron Works National Historic Site
Geographic Area:	Massachusetts, Essex County, Town of Saugus

Start Date:	
Discovery Date:	
Current Date:	

Start Time:	
Discovery Time:	
Current Time:	

Current Size in Acres:	
------------------------	--

Location (Legal Description)	Latitude/Longitude:	
	UTM:	
	County:	Essex

Local Description:	

Cause of Fire:	

Fuel Model/Conditions:	
Current Weather Conditions:	

Predicted Weather Conditions:	

Current Fire Behavior:	

Predicted Fire Behavior:	

Availability of Resources:	

DECISION CRITERIA CHECKLIST

DECISION ELEMENT	YES	NO
Is there a threat to life, property, or resources that cannot be mitigated?		
Are potential effects on cultural and natural resources outside the range of acceptable effects?		
Are relative risk indicators and/or risk assessment results unacceptable?		
Is there other proximate fire activity that limits or precludes successful management of this fire?		
Are there other issues that preclude wildland fire use for resource objectives?		

The Decision Criteria Checklist is a process to assess whether or not the situation warrants continued wildland fire use implementation. A "Yes" response to any element on the checklist indicates that the appropriate management response should be suppression-oriented.

Recommended Response Action	(check appropriate box)
Initial Attack/Suppression Action	
Other Appropriate Management Action	

Signature:	
-------------------	--

Date of Signature:	
---------------------------	--